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ABSTRACT

This 2+2 articulated curriculum for the occupation of forest technician includes the following: program results and benefits; job description--forest technician; curriculum objective; duty and task listings for forest technician; recommended secondary and postsecondary course options flowchart; recommended student prerequisites; basic outlines for secondary and postsecondary courses; reference materials list; line drawing of recommended facility; list of recommended tools and equipment; competency profile; student monitoring and follow-up; career ladder information; recommended teacher approval criteria; and articulation agreement. Substantial lists of reference materials include the following: a list of references by secondary course title, a general reference list supplemental to course listings, and postsecondary references. Fifteen forest technician duties are listed: cruise timber; timber sales security; timber acquisition; timber marking; herbaceous control; insect and disease control; supervision of employees and contractors; job improvement; environmental impact management; public relations; controlled burning; site preparation; regeneration; record management; and operate and maintain equipment. For each task under a duty, the following are given: performance objective, standard, materials needed, enabling objectives, and performance guides. (NLA)

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2 + 2

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I. RESULTS AND BENEFITS

A 2+2 articulated curriculum for the occupation of forest technician has been developed which includes:

- A brief description of the occupation of forest technician.
- The basic objective of the curriculum
- A flow chart showing the recommended secondary and postsecondary course options
- Recommended student prerequisites including academic courses
- Basic course outlines for grades 9-14
- A list of secondary reference materials
- A line drawing of recommended facilities
- A list of recommended tools/equipment and estimated costs
- A competency profile
- An example of the student monitoring and follow-up system
- Recommended teacher approval criteria
- A sample articulation agreement

The 2+2 articulated curriculum for the forest technician is presented on the following pages.

It is anticipated that other school districts and two year postsecondary institutions will be able to use the curriculum as a model for linking instructional activities of secondary and postsecondary education for the preparation of technical workers in the agricultural industry.

II. JOB DESCRIPTION: FOREST TECHNICIAN

The forest technician:

- Gathers information in the field.
- Reports the information gathered to supervision for analysis to determine appropriate field action.
- Carries out the appropriate action in the field.

The forest technician must be:

- Willing to work long hours
- Self motivated
- Physically fit
- Able to work alone or as a team member
- Willing to work with the public
- Willing to accept change
- Able to work under pressure/stress
- Able to make quick decisions based on current information and personal observation
- Willing to work under adverse conditions
- An outdoor person

III. CURRICULUM OBJECTIVE

The curriculum is designed to produce an individual with skills, knowledge, and abilities sufficient to begin work as a forest technician in either the private or corporate area of the forestry industry. The individual should perform safely and effectively in the position assigned to him by his employer. Graduates will be able to work independently or in a supervisory capacity.

IV. DUTY AND TASK LISTINGS FOR FOREST TECHNICIAN

The following is a chart showing the duty and task list for a forest technician. This list was compiled by a panel of forestry employees. The panel consisted of technicians/managers in the forestry industry.

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FOREST TECHNICIAN

DUTIES	TASKS									
A. CRUISE TIMBER	1. Verify Property Lines and Ownership	2. Review Aerial Photograph	3. Draw a Field Map	4. Estimate and Record Volume	5. Determine Stand Composition and Prescription		6. Prepare Cruise Report			
B. TIMBER SALES SECURITY	1. Review Contracts	2. Conduct Pre-logging Conference	3. Inspect Job Site	4. Conduct Post Inspection of Job Site						
C. TIMBER ACQUISITION	1. Contact Land Owner	2. Negotiate the Contract	3. Execute the Contract							
D. TIMBER MARKING	1. Determine the Production Objective	2. Mark the Timber According to the Plan	3. Prepare the Tally Sheet							
E. HERBACEOUS CONTROL	1. Determine the Control Objective	2. Determine the Method of Control	3. Use Mechanical Control	4. Use Chemical Control	5. Perform Post-Job Inspection					
F. INSECT AND DISEASE CONTROL	1. Detect Insect or Disease	2. Verify and Assess Infestation	3. Determine and Implement Control	4. Monitor the Control Measures						
G. SUPERVISION OF EMPLOYEES AND CONTRACTORS	1. Schedule Employees Work	2. Assign Employees Work	3. Train Employees	4. Supervise Employee Activities	5. Negotiate Contract with Contractors	6. Monitor Contractor's Work	7. Perform Post Inspection of Contractor's Work			
H. JOB IMPROVEMENT	1. Evaluate Existing Jobs	2. Develop Ideas for Job Improvement		3. Provide Continuing Education	4. Emphasize Safe Practices					

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FOREST TECHNICIAN

DUTIES	TASKS									
I. ENVIRONMENTAL IMPACT MANAGEMENT	1. Carry Out Wildlife Management Plan		2. Comply With Best Management Practices		3. Maintain Environmental Records					
J. PUBLIC RELATIONS	1. Communicate Positive Image	2. Accomplish Quick, Positive Solution to Problems		3. Provide Public Information						
K. CONTROLLED BURNING	1. Develop a Burning Plan	2. Establish Fire Lines	3. Organize the Burn	4. Execute Site Preparation Burn	5. Execute Prescribed Burn	6. Perform Post Burn Inspection				
L. SITE PREPARATION	1. Determine Planting Method	2. Apply Mechanical Method of Site Preparation	3. Apply Chemical Method of Site Preparation	4. Inspect Final Site Preparation						
M. REGENERATION	1. Distribute Seedlings	2. Monitor the Contractors Work	3. Perform Final Inspection	4. Perform One Year Survival Check						
N. RECORD MANAGEMENT	1. Use Polycorder	2. Use Personal Computer for Word Processing	3. Use Personal Computer for Data Base Management		4. Use Personal Computer with Spreadsheets	5. Maintain All Company Records	6. Maintain Client Records	7. Maintain Daily Log	8. Use Calculator	
O. OPERATE AND MAINTAIN EQUIPMENT	1. Operate and Maintain Light Dozer	2. Operate and Maintain Transport Truck (Roll Back)		3. Operate and Maintain Chain Saw	4. Operate and Maintain Marking Equipment	5. Operate and Maintain Company Vehicles	6. Operate and Maintain All Terrain Vehicles			

DUTY: A. CRUISE TIMBER

TASK: 1. Verify Property Lines and Ownership

****

Performance Objective: Given the materials listed below, verify property lines and ownership.

Standard: Property lines and ownership must coincide with official deeds and plat maps.

Materials Needed: Plat Maps, Measuring Devices, Cruising Compass.

Enabling Objectives: Know how to read plat maps.
Know how to run a compass.

Performance Guide:

1. Contact current land owner if available
2. Locate subject tract of land on a highway map
3. Locate tract of land on aerial photographs and Tobin ownership and lease maps
4. Go to courthouse of county where tract is located to:
    a. Search Grantor/Grantee listings for owner's name as it applies to this tract of land
    b. Locate field notes for land description
    c. Locate liens or other encumbrances

DUTY: A. CRUISE TIMBER

TASK: 2. Review Aerial Photographs

****

Performance Objective: Given the materials listed below, review aerial photographs.

Standard: Aerial photographs must be update and coincide with property in the plat or deed.

Materials Needed: Plat Maps, Aerial Photographs, Grease Pencil, Measuring Devices, Planimeter.

Enabling Objectives: Know how to read aerial photographs.
Know how to determine timber types.
Know how to determine boundary lines.
Know how to tell differences in hardwoods and pine stands.
Know the scale of your map.

Performance Guide:

1. Determine the map scale
2. Get maps from ASCS offices or tax appraisal offices
3. Locate the tract on an aerial photograph
4. Draw boundaries of tract on photo with grease pencil
5. Note surrounding lands
6. Plan cruise direction and intensity based on drainage areas and stand densities

DUTY: A. CRUISE TIMBER

TASK: 3. Draw a Field Map

****

Performance Objective: Given the materials listed below, draw a field map.

Standard: Map is to show accurate boundary lines, differences in timber, any creeks, upland or bottomland areas.

Materials Needed: Aerial Photographs, Drawing Pens, Scale Stick, Paper, Tracing Paper.

Enabling Objectives: Be able to read and understand aerial photographs.
Have basic knowledge of map scale.

Performance Guide:

1. Lay out the aerial photograph
2. Identify the boundary lines, fences, cross fences, creeks, encroachments, corners, etc.
3. Determine the timber types found on the aerial photograph
4. Determine which areas are upland and bottomland

DUTY: A. CRUISE TIMBER

TASK: 4. Estimate and Record Volume

****

Performance Objective: Given the materials listed below, estimate and record volume.

Standard: An accurate estimate of timber volume will be based on the timber cruise.

Materials Needed: Cruise Compass, Diameter Tape, Clinometer, Volume Tables, Calculator, Cruising Vest.

Enabling Objectives:
Be able to run a compass.
Be able to assess tree height.
Be able to read a volume table
Be able to assess form class.

Performance Guide:

1. Put on cruising vest with appropriate equipment
2. Determine the type of cruise needed
3. Measure plot radius
4. Determine the diameter and height of each tree in each sample plot
5. Determine the form class (tree product, grade, classification, etc.)
6. Use the pine log volume tables to determine volume
7. Record information on tally sheets

DUTY: A. CRUISE TIMBER

TASK: 5. Determine Stand Composition and Prescription

****

Performance Objective: Given the materials listed below, determine the stand composition and prescription.

Standard: All timber types must be determined and the land owner advised of needs to provide proper forest management practices.

Materials Needed: Aerial Photographs.

Enabling Objectives: Be able to understand tree types.
Be able to determine upland and bottomland.
Be able to read aerial photographs.

Performance Guide:

1. Study the aerial photographs
2. Determine the timber types
3. Discuss with the land owner his expectations from his timber stand
4. Determine management plan
5. Make recommendations to the land owner

DUTY: A. CRUISE TIMBER

TASK: 6. Prepare Cruise Report

****

Performance Objective: Given the materials listed below, prepare a cruise report.

Standard: Prepare an accurate report that records timber types, volume of products, and value of each product.

Materials Needed: Good Quality Typewriter or Computer, Cruise Information at Hand.

Enabling Objectives: Have a knowledge of the timber market.

Performance Guide:

1. Determine the volume of the different wood products (by hand or using computer cruise program)
2. Assess the value of the different products
3. Prepare the report on the typewriter or computer
4. Make bid offer

DUTY: B. TIMBER SALES SECURITY

TASK: 1. Review Contracts

****

Performance Objective: Given the materials listed below, review contracts.

Standard: The contract must be agreeable to both the timber buyer and the timber seller.

Materials Needed: Contract

Enabling Objectives: Have a knowledge of timber contracts.
Have a knowledge of common logging practices.

Performance Guide:

1. Review the contract
2. Have the seller review the contract
3. Adjust contract if necessary to satisfy both parties
4. Sign contract

DUTY: B. TIMBER SALES SECURITY

TASK: 2. Conduct Pre-Logging Conference

****

Performance Objective: Given the materials listed below, conduct a pre-logging conference.

Standard: Both the buyer and seller will know what will be harvested, the method used to harvest, and the condition of the property following harvest.

Materials Needed: Contract, Cruise Report, Aerial Photograph

Enabling Objectives: Be able to negotiate with both buyer and seller.

Performance Guide:

1. Explain to both buyer and seller what is being sold
2. Explain to the land owner how the timber will be harvested
3. Make sure the landowner understands and is satisfied with the property's condition following the logging operation

DUTY: B. TIMBER SALES SECURITY

TASK: 3. Inspect Job Site

****

Performance Objective: Given the materials listed below, inspect the job site.

Standard: The job site will be inspected during harvesting for correct timber marketed and no excessive damage done to the property.

Materials Needed: Cruise Report, Aerial Photograph.

Enabling Objectives: Have a basic knowledge of logging practices.

Performance Guide:

1. Inspect the job site for marketable timber harvested
2. Inspect the job site for marketable timber not harvested
3. Inspect the job site for damage

DUTY: B. TIMBER SALES SECURITY

TASK: 4. Conduct Post Inspection of the Job Site

****

Performance Objective: Given the materials listed below, conduct a post inspection of the job site.

Standard: Final inspection of the job site will insure correct timber marketed and no excessive damage done to the property.

Materials Needed: Cruise Report, Aerial Photographs.

Enabling Objectives: Have a basic knowledge of logging practices.

Performance Guide:

1. Make final inspection for proper harvesting of timber
2. Make final inspection for unharvested timber
3. Make final inspection for property damage

DUTY: C. TIMBER ACQUISITION

TASK: 1. Contact Land Owner

****

Performance Objective: Given the materials listed below, contact the land owner.

Standard: The land owner must be contacted to determine his interest in selling his timber.

Materials Needed: References from Former Jobs, Land Owner.

Enabling Objectives: Have a basic knowledge of timber management.

Performance Guide:

1. Prepare references from past jobs
2. Make initial contact through telephone or letter
3. Follow up initial contact with personal visit

DUTY: C. TIMBER ACQUISITION

TASK: 2. Negotiate the Contract

****

Performance Objective: Given the materials listed below, negotiate the contract.

Standard: The contract should be satisfactory to both the buyer and the seller.

Materials Needed: Workable Contract.

Enabling Objectives: Have a good knowledge of timber contracts.

Performance Guide:

1. Present the contract to the buyer for approval
2. Present the contract to the seller for approval
3. Make adjustments in the contract as needed to satisfy both the buyer and the seller

DUTY: C. TIMBER ACQUISITION

TASK: 3. Execute the Contract

****

Performance Objective: Given the materials listed below, execute the contract.

Standard: The contract will be signed by the notary and filed in the local courthouse.

Materials Needed: Contract.

Enabling Objectives: Have a good knowledge of timber contracts.

Performance Guide:

1. Have the buyer and seller sign the contract
2. Have the contract notarized
3. File the contract in the county courthouse

DUTY: D. TIMBER MARKING

TASK: 1. Determine the Production Objective

****

Performance Objective: Given the materials listed below and a tract of timber, determine the production objective for that tract of land.

Standard: Given the land owners priorities, determine course of action and develop a plan for marking, selling and harvesting trees that will meet land owners priorities.

Materials Needed: Land with Timber, (Tract of Timber), Hand Compass, Tally Book, Tally Sheet, Pencil, Colored Flagging Tape, Diameter Tape, Biltmore Stick, Aerial Photographs of Tract, Topographic Map.

Enabling Objectives: Have understanding of aerial photo interpretation.
Knowledge of pacing. Knowledge of reading topographic maps. Ability to layout and accomplish a timber cruise.
Ability to formulate a plan from data collected.

Performance Guide:

1. Sketch tract on aerial photograph
2. Sketch tract on topographic map
3. Make preliminary timber-type map
4. From topographic layout cruise lines perpendicular to the drainage
5. Collect data in field
    a. Pace from property edge to first cruise line
    b. Pace to first plot center
    c. Inventory trees in plot (tally)
    d. Repeat steps A, B and C then ground verify timber type map
6. Calculate tract volume data (species, diameter, heights and volume)
7. Using land owners priorities decide which species and six classes are to be marked
8. Write plan for marking timber

DUTY: D. TIMBER MARKING

TASK: 2. Mark the Timber According to the Plan

****

Performance Objective: Given the materials listed below mark the timber according to the plan.

Standard: Mark the timber according to the plan so that all saleable timber can be marketed.

Materials Needed: Tree Marking Gun and Paint, Diameter Tape, Biltmore Stick, Tally Book and Tally Sheets, Snake Boots.

Enabling Objectives: Knowledge of timber marking techniques and timber marking plan.

Performance Guide:

1. Begin marking near property edge, according to plan
2. Apply two marks to each tree, one at ground line and one at head height
3. Mark all trees on same side throughout tract
4. Tally each marked tree by diameter class and merchantable height.

DUTY: D. TIMBER MARKING

TASK: 3. Prepare the Tally Sheet

****

Performance Objective: Given materials listed below and a tract of marked timber, prepare the tally sheet.

Standard: The tally sheet must be accurate for estimating the value of the products on the tract.

Materials Needed: Calculator, Timber Volume Tables, Pulpwood Volume Tables, Pencil.

Enabling Objectives: Know how to work a calculator.
Know how to interpret the timber volume and pulpwood volume tables and properly prepare the tally sheet.

Performance Guide:

1. Calculate numbers of trees in each diameter and height class on a table
2. Using volume tables, calculate volumes in each diameter and size class recorded in the previous table

DUTY: E. HERBACEOUS CONTROL

TASK: 1. Determine the Control Objective

****

Performance Objective: Given materials listed below and a tract of land, determine the control objective.

Standard: Competing herbaceous plants must be controlled to allow existing desirable plants to gain maximum production or to prepare a site for planting.

Materials Needed: Vehicle, Pencil, Writing Paper.

Enabling Objectives: Have a knowledge of forestry practices and control methods.
Be able to identify competing herbaceous plants.

Performance Guide:

1. Make an on-site investigation to determine the objectives of the land owner
2. Make recommendations to meet the control objective

DUTY: E. HERBACEOUS CONTROL

TASK: 2. Determine the Method of Control

****

Performance Objective: Given the materials listed and a tract of land, determine the method of control.

Standard: The method of control of competing herbaceous plants is dependent upon the types of plants and the severity of the growth of the plants.

Materials Needed: Calculator, Weed Control Guide, Vehicle, Pencil, Writing Paper.

Enabling Objectives: Have a knowledge of the different control methods (mechanical and chemical).
Be able to identify competing Herbaceous plants.

Performance Guide:

1. Determine undesirable plants
2. Select method of control
    A. Mechanical
    B. Chemical
3. Plan timely application of control method
4. Employ method of control
    A. Mechanical
    B. Chemical
5. Use proper safety precautions

DUTY: E. HERBACEOUS CONTROL

TASK: 3. Use Mechanical Control

****

Performance Objective: Given materials listed below and a tract of land, control herbaceous plants mechanically.

Standard: Herbaceous plants will be controlled in a timely manner to ensure seedling survival.

Materials Needed: Tractor, Shredder or Mower, Goggles, and Gloves.

Enabling Objectives: Have knowledge of operating tractor, adjusting and maintaining mower.

Performance Guide:

1. Determine undesirable plants
2. Determine time of control
3. Adjust and lubricate equipment
4. Mow competing plants
5. Check for regrowth of competing plants
6. Use proper safety precautions with equipment

DUTY: E. HERBACEOUS CONTROL

TASK: 4. Use Chemical Control

****

Performance Objective: Given materials listed below and a tract of land, control herbaceous plants with chemicals.

Standard: Herbaceous plants will be controlled with chemicals in a timely manner to ensure seedling survival.

Materials Needed: Chemicals (approved), Protective Clothing, Respirator, Rubber Gloves, Goggles, Hand-Held Pressure-type Sprayer, Tractor with PTO, Airplane or Helicopter.

Enabling Objectives: Know which chemicals are registered for use in controlling herbaceous plants.
Know how to properly mix chemicals for application.
Be able to identify competing plants.
Be able to operate the various types of equipment.

Performance Guide:

1. Determine herbaceous plants to be controlled
2. Determine kinds and amounts of chemicals to be applied
3. Determine the best time for application of chemicals for proper control
4. Adjust sprayer for chemical application
5. Apply chemicals for herbaceous control
6. Check field to determine success of chemical application
7. Use proper safety precautions with chemicals and equipment

DUTY: E. HERBACEOUS CONTROL

TASK: 5. Perform Post-Job Inspection

****

Performance Objective: Given materials listed below and a tract of land, perform post-job inspection to determine herbaceous control.

Standard: Herbaceous control must be 85% effective as determined by post-job inspection.

Materials Needed: Vehicle, pencil, paper, measuring tape.

Enabling Objectives: Be able to identify competing plants.

Performance Guide:

1. Schedule time to perform post-job inspection
2. Make an on-site investigation of herbaceous plants controlled
3. Record findings for documentation
4. Schedule re-application, if necessary

DUTY: F. Insect and Disease Control

TASK: 1. Detect Insect or Disease

****

Performance Objective: Given materials listed below and a stand of trees, detect insects or disease.

Standard: Insects or disease in a stand of trees must be detected early to prevent excessive damage.

Materials Needed: Vehicle or Airplane, and Aerial Photograph.

Enabling Objectives: Know of various insects or diseases that infest trees.

Performance Guide:

1. Determine likelihood of infestation
2. Perform observation for insect or disease infestation
3. Record exact location of infestation on aerial photograph
4. Determine type of insects or disease

DUTY: F. INSECT AND DISEASE CONTROL

TASK: 2. Verify and Assess Infestation

****

Performance Objective: Given the materials listed and a stand of trees, verify and asses infestation.

Standard: An infestation in a stand of trees has to be verified and assessed in order to determine a control.

Materials Needed: Vehicle, Pencil, Writing Paper, Control Guides, and Aerial Photograph.

Enabling Objectives: Have a knowledge of various insects and diseases that infest trees.

Performance Guide:

1. Determine exact location of infestation on aerial photograph
2. Travel to site of infestation to verify and assess
3. Make visual observation of infestation for verification
4. Assess infestation to determine control

DUTY: F. INSECT AND DISEASE CONTROL

TASK: 3. Determine and Implement Control

****

Performance Objective: Given materials listed below and a stand of trees, determine and implement control of insects and disease.

Standard: Insect and disease control is necessary in order to prevent excessive damage to an infected stand of trees.

Materials Needed: Vehicle, Pencil, Writing Paper, Control Method Guides, Flagging, and Wire Stakes.

Enabling Objectives: Have knowledge of insects and diseases.
Know how to use control methods.
Be familiar with vendors to perform control methods.

Performance Guide:

1. Determine kind of infestation in the stand of trees
2. Make recommendation of control method
3. Enlist or secure a vendor to perform the control method
4. Mark treatment area where control methods will be applied
5. Observe and supervise implementation of control methods
6. Use proper safety precautions

DUTY: F. INSECT AND DISEASE CONTROL

TASK: 4. Monitor the Control Measures

****

Performance Objective: Given materials listed below and a stand of trees, monitor the control measures.

Standard: Control measures will be monitored to ensure a successful control of infestation to obtain maximum production.

Materials Needed: Vehicle, Pencil, and Writing Paper.

Enabling Objectives: Know of control measures.
Know of insects and diseases.

Performance Guide:

1. Observe and supervise implementation of control measures
2. Give instructions to alter control measures as needed to obtain control
3. Verify success of control measures

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DUTY: F. INSECT AND DISEASE CONTROL

TASK: 5. Perform Post-Job Inspection

****

Performance Objective: Given materials listed below and a tract of land, perform post-job inspection to determine herbaceous control.

Standard: Herbaceous control must be 85% effective as determined by post-job inspection.

Materials Needed: Vehicle, Pencil, Paper, Measuring Tape.

Enabling Objectives: Be able to identify competing plants.

Performance Guide:

1. Schedule time to perform post-job inspection
2. Make an on-site investigation of herbaceous plants controlled
3. Record findings for documentation
4. Schedule re-application, if necessary

DUTY: G. SUPERVISION OF EMPLOYEES AND CONTRACTORS

TASK: 1. Schedule Employees Work

****

Performance Objective: **Given materials listed below and availability of labor, labor timetable, tax assignment, and supervision plan, develop employee work schedules.**

Standard: **The work schedule must provide the labor and time allotment for task performance.**

Materials Needed: Calendar and Work Record Book.

Enabling Objectives: None.

Performance Guide:

1. Assess amount and ability of available labor
2. Assess times and season for work assignment
3. Assess minimum and maximum labor needs
4. Determine responsibility for work tasks

DUTY: G. SUPERVISION OF EMPLOYEES AND CONTRACTORS

TASK: 2. Assign Employees Work

****

Performance Objective: Given the materials listed below, assign duties to employees.

Standard: Duty assignments must outline work to be performed, standard of acceptable performance, and a designated time frame.

Materials Needed: Employee, List of Duties to be Performed, Time when Duties are Expected to be Completed.

Enabling Objectives: Know how to perform all duties.

Performance Guide:

1. Assign duties to be performed by employees
2. If necessary, explain and demonstrate the performance of each duty and the standard of acceptable performance
3. Inform employee about time for completion of assignment
4. Ask for and answer all questions thoroughly
5. Follow up on all duties that were assigned

DUTY: G. SUPERVISION OF EMPLOYEES AND CONTRACTORS

TASK: 3. Train Employees

****

Performance Objective: Given materials listed below, train employees.

Standard: Training must be conducted to meet specified employee needs.

Materials Needed: Employees, Tools and/or Equipment for Each Job.

Enabling Objectives: Have knowledge of the specific jobs to be performed by the employee, and the ability to convey that knowledge.

Performance Guide:

1. Assess workers' background and experience
2. Select task(s) for which skill(s) is lacking
3. Demonstrate the performance of each task
4. Have workers demonstrate same task(s)
5. Evaluate worker's performance
6. Retrain workers where needed

DUTY: G. SUPERVISION OF EMPLOYEES AND CONTRACTORS

TASK: 4. Supervise Employee Activities

****

Performance Objective: Given materials listed below, supervise employee activities.

Standard: Supervise employees to assure that the job and/or tasks are properly completed.

Materials Needed: Employee, Employee List, Work Schedule, and Job Standard Guidelines.

Enabling Objectives: Know how to perform the jobs and/or tasks according to company standards.

Performance Guide:

1. Review list of employees
2. Review work schedule of each employee
3. Observe each employee as they perform their assigned task
4. Determine that each employee is performing their task correctly
5. Describe and/or demonstrate the proper way to perform a task if an employees' performance does not meet company standards
6. Repeat observations on a regular basis

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DUTY: G. SUPERVISION OF EMPLOYEES AND CONTRACTORS

TASK: 5. Negotiate Contract with Contractors

****

Performance Objective: Given materials listed below, negotiate contracts with contractors.

Standard: Contract must contain all required information, and must meet contractor and contracting company requirements.

Materials Needed: Written contract(s), Contractor Representative Attorney, and Previous contracts.

Enabling Objectives: Have knowledge of the job to be completed, company standards, and the time table in which the job is to be completed.

Performance Guide:

1. Review contract carefully
2. Verify information
    - A. Terms of payment
    - B. Time table for job completion
    - C. Company Standards
    - D. Description of job to be completed
    - E. Incentives or penalties
    - F. Stipulation of unusual restrictions or requirements
3. Make sure that you and the contractor understand all parts of the contract
4. If other contracts are available, make comparisons
5. Consult attorney as required
6. Obtain approval from company supervisor
7. Sign Contract

DUTY: G. SUPERVISION OF EMPLOYEES AND CONTRACTORS

TASK: 6. Monitor Contractor's Work

****

Performance Objective: Given materials listed below, supervise contractor's work.

Standard: Monitor contractor to assure that the job is being completed correctly.

Materials Needed: Written Contracts, Contractor Representative, Work schedule, and Contractor List.

Enabling Objectives: Know how to read and understand terms of a contract.
Have knowledge of company standards.

Performance Guide:

1. Review list of contractors
2. Review contract
3. Observe contractors as they perform assigned job
4. Determine if the job is being performed according to the terms of the contract and the company standards
5. Record any problems that may exist and prepare a report
6. Record date and time that job is completed and prepare a report
7. File copies of all reports
8. Send copies of reports to contractor representative and company supervisor

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DUTY: G. SUPERVISION OF EMPLOYEES AND CONTRACTORS

TASK: 7. Perform Post Inspection of Contractor's Work

****

Performance Objective: Given materials listed below, perform post inspection of contractor's work.

Standard: Perform post inspection of contractors work to determine if job was performed according to contract specification.

Materials Needed: Written Contract, and Contractor Representative.

Enabling Objectives: Know terms of contract.
Know the expected results of the work performed.
Know how to fill out a report.

Performance Guide:

1. Review contract carefully
2. Familiarize yourself with all details of the job that was to be completed
3. Allow contractor representative to be present while conducting inspection
4. Inspect job site to determine if all points of the contract were completed
5. Make notes of any areas of the contract that were not fulfilled
6. Prepare and present a report to the contractor and company supervisor
    A. List deficiencies
    B. Make recommendations

DUTY: H. JOB IMPROVEMENT

TASK: 1. Evaluate Existing Jobs

****

Performance Objective: Given materials listed below, evaluate existing jobs.

Standard: Perform evaluation of existing jobs to determine areas in need of improvement.

Materials Needed: Job or Task Descriptions, and Evaluation Forms.

Enabling Objectives: Know how to fill out evaluation forms. Know how to perform each job that is to be evaluated.

Performance Guide:

1. Review each job description
2. Obtain or develop an evaluation form
3. Determine how the job is being performed at present
4. Make notes on areas where improvement is needed
5. Make recommendations on ways of improvement
6. File a copy of the completed evaluation form and the recommendations for improvement
7. Submit a copy to your company supervisor

DUTY: H. JOB IMPROVEMENT

TASK: 2. Develop Ideas for Job Improvement

****

Performance Objective: Given materials listed below, develop ideas for job improvement.

Standard: Develop methods of completing jobs that will improve working conditions, and also save time, money and labor.

Materials Needed: Job Descriptions, Job Evaluations, Employee Evaluation Forms, Job Research Results, Other Company Job Evaluations, Workshops, and College or other Technical Schools.

Enabling Objectives: Know how to perform each job that may need improvement.
Be able to distinguish problem areas.

Performance Guide:

1. Review job description
2. Review job evaluation forms
   A. Look for areas where "needing improvement" was noted
   B. Look for any recommendations that might have been made
3. Ask employees to fill out Job Evaluation Forms
   A. Ask for problems they have encountered
   B. Ask for their recommendation
4. Utilize and Employee Suggestion Box
5. Have regular employee meetings to discuss problems and solutions
6. Read books, magazines, etc. that may contain job improvement ideas
7. If available, attain methods that work for other companies
8. Attend workshops dealing with job improvements
9. Attend college or other technical schools where courses might be offered dealing with job improvement
10. Compile the information gained from all sources into a report
11. File a copy of the report
12. Submit a copy of the report to the company supervisor
13. Place improvement methods into effect
14. Monitor progress and make adjustments as needed

DUTY: H. JOB IMPROVEMENT

TASK: 3. Provide Continuing Education

****

Performance Objective: Given the materials listed below, provide continuing education.

Standard: Provide methods which allow employees to gain training, which will improve job performance and/or give opportunity for promotion.

Materials Needed: Employees Desiring Training, Employees Evaluations, Employee Questionnaires, Job Evaluations, Instructors, Facilities, Text Materials, Tools or Equipment used for Various Jobs, Local Educational Institutions, and Certificates.

Enabling Objectives: Know job descriptions.
Know performance of all jobs.
Know areas where additional training may be needed.

Performance Guide:

1. Review all job descriptions
2. Review job evaluations
    A. Know how to perform all jobs
    B. Note areas where additional training may be needed
3. Review all employee evaluations to determine areas where training may be needed
4. Allow employees to fill out questionnaires on what training they would like to receive
5. Use information gained in steps 1-4 to determine the training that is needed
6. Set up classes that will provide the needed training
    A. Workshops may be set up, using the company facilities and bringing in an instructor, or
    B. Contract with an educational institution to provide training
7. Recognize the employees that attend and complete training
    A. Award program
    B. Award certificates
    C. Bonuses
    D. Other incentives

DUTY: H. JOB IMPROVEMENT

TASK: 4. Emphasize Safe Practices

****

Performance Objective: Given materials listed below, emphasize safe practices.

Standard: Identify and emphasize safe practices for all areas of forestry.

Materials Needed: Safety Rules for all Equipment and Jobs, and Safety Equipment..

Enabling Objectives: Know Safe Procedures for use of all Equipment.

Performance Guide:

1. Review all Safety Rules and Procedures
2. Give Copies of all Safety Rules and Procedures to the Employees
3. Require all Employees to Obtain and use Safety Equipment Such as, Safety Glasses, Ear Plugs, etc.
4. Conduct Safety Workshop
5. Hold Monthly safety Meetings
6. Provide Incentives for Maintaining a Good Safety Record

DUTY: I. ENVIRONMENTAL IMPACT MANAGEMENT

TASK: 1. Carry Out Wildlife Management Plan

****

Performance Objective: Given materials listed below, carry out wildlife management plan.

Standard: Perform duties and jobs which will provide the most optimum conditions for wildlife.

Materials Needed: Wildlife Management Plan, Wildlife Research, Computer, Data Base, Expense Resources, Equipment for Constructing or Cleaning Up Habitat.

Enabling Objectives: Know how to obtain and use research material.
Know how to operate computer and use available software.
Know basic needs of wildlife.

Performance Guide:

1. Review the basic needs of wildlife in a particular area
2. Develop Wildlife Management Plan
   A. Utilize Wildlife Research
   B. Utilize other existing management plans
   C. Utilize computer models
   D. Utilize database Management System
3. Place Wildlife Management Plan into Operation
   A. Utilize capital for expenses included in plan
   B. Utilize personnel for construction or clean-up of habitat area
4. Monitor the Management Plan and make adjustments as needed

DUTY: I. ENVIRONMENTAL IMPACT MANAGEMENT

TASK: 2. Comply With Best Management Practices

****

Performance Objective: Given materials listed below, comply with Best Management Practices.

Standard: The procedure must make use of the best Management Practices Available.

Materials Needed: Management Research, Field Observation and Studies, Other Management Plans.

Enabling Objectives: Know good management practices.
Know how to develop a good management plan.

Performance Guide:

1. Perform field observations to determine what management practices are needed
2. Develop management practices that are needed
    A. Use field observation
    B. Use field studies and research
    C. Use other management practices plans
3. Place management practices into use
4. Monitor management practices and make adjustments as needed

DUTY: I. ENVIRONMENTAL IMPACT MANAGEMENT

TASK: 3. Maintain Environmental Records

****

Performance Objective: Given materials listed below, Maintain Environmental Records.

Standard: The procedure must present the most accurate information on the effect of forestry on the environment.

Materials Needed: Computer, Database System, Field Studies and Observations.

Enabling Objectives: Know how to operate computer and use database management system.
Know how to perform field studies and record information.

Performance Guide:

1. Conduct regular field studies on the effects of forestry, on the area environment
   A. Note erosion problems
   B. Note the death or absence of native wildlife
   C. Note ground water pollution
   D. Note any other problems that affect the natural environment
2. Enter the information gained from field studies into a database management system
3. Prepare environmental reports, using the database
4. File copies of the environmental report
5. Update the information regularly of as conditions change

DUTY: J. PUBLIC RELATIONS

TASK: 1. Communicate Positive Image

****

Performance Objective: Given materials listed below, communicate a positive image to the public.

STANDARD: A positive professional image is always displayed to the public.

Materials Needed: Desirable Personality, Tact, Professional Knowledge, Communication Skills.

Enabling Objectives: Ability to present yourself in a positive way.

Performance Guide:

1. Ask the land owner to tell you a brief history of their timber treatments, and previous timber experiences
2. Discuss some of the pitfalls of timber dealings
3. Relate to land owner how you would avoid those pitfalls, Emphasize importance of use of experienced professional foresters in avoiding problems
4. Ask the land owner to discuss objectives and future plans for his tract of timber
5. Discuss management options available and income producing potential (present timber material)

DUTY: J. PUBLIC RELATIONS

TASK: 2. Accomplish Quick, Positive Solution to Problems

****

Performance Objective: Given materials listed below, always accomplish quick, positive solutions to problems.

Standard: The public is given quick, positive solutions to problems that might arise.

Materials Needed: Good Sound Judgment, Temper Judgment with Current Professional Experiences.

Enabling Objectives: Have ability to recognize what the problems are how to apply technical knowledge and experience to acknowledge problems.

Performance Guide:

1. Recognize problem
2. Define problem
3. Apply various known techniques to problems
4.. Implement best technique for quick, positive solution

DUTY: J. PUBLIC RELATIONS

TASK: 3. Provide Public Information

****

Performance Objective: Given materials listed below provide the public with information.

Standard: All persons will be provided with needed information concerning any timber transactions or activities.

Materials Needed: Knowledge of the subject. Knowledge of multimedia presentations. Media contacts and the public.

Enabling Objectives: Cultivate contacts within the public and media, provide needed public information seek recognition from professional peers.

Performance Guide:

1. Be able to speak at public meetings
2. Be capable of carrying on intelligent communication in a one on one situation
3. Be capable of speaking at elementary and secondary school programs

DUTY: K. CONTROLLED BURNING

TASK: 1. Develop a Burning Plan

****

Performance Objective: Given materials listed below, develop burning plan.

Standard: Plan must be precise in that all needed information is gathered to safely and correctly carry out control burn.

Materials Needed: Aerial Photos, Field Maps.

Enabling Objectives: Know basic steps involved in control burn.

Performance Guide:

1. Secure written request from landowner
2. Secure liability release from landowner
3. Determine type burn needed
4. Develop burning plan

DUTY: K. CONTROLLED BURNING

TASK: 2. Establish Fire Lines

****

Performance Objective: Given materials listed below, establish fire lines.

Standard: Lines must be established to prevent fire escaping to areas not to be burned.

Materials Needed: Aerial Photos, Field Maps Showing Location of Lanes to Establish, Burning Plan.

Enabling Objectives: Know how to operate and maintain tractor and plow.
Know how to read map and determine location of field and lanes to establish.

Performance Guide:

1. Identify area to be burned
2. Check and service equipment before using
3. Establish fire lines according to plan
4. Clean, check and service equipment
5. Return equipment to storage area

DUTY: K. CONTROLLED BURNING

TASK: 3. Organize the Burn

****

Performance Objective: Given materials listed below, organize the burn.

Standard: Burn must be organized, using data, so that all parties know their respective duties.

Materials Needed: Aerial Photos, Field Maps Showing Location of Lanes to Establish, Burning Plan, Weather Data, Fuel on Site Conditions.

Enabling Objectives: Know the degree of burn needed to destroy fuel on site.
Be familiar with site conditions-both area to be burned and surrounding area.
Know weather data ranges required for burn.
Know hazards in adjacent property and possible smoke problems.

Performance Guide:

1. Identify area to be burned
2. Prepare field maps for all parties involved
3. Make all personnel aware of respective duties and responsibilities
4. List and secure equipment needed
5. Check needed weather data, site conditions, entry and exit points to site, beginning and ending point

DUTY: K. CONTROLLED BURNING

TASK: 4. Execute Site Preparation Burn

****

Performance Objective: Given materials listed below, execute the site preparation burn.

Standard: Fuel on site must be burned to enable regeneration or re-establishment of stand by other means.

Materials Needed: Aerial Photos, Field Maps Showing Location of Lanes to Establish, Burning Plan, Weather Data, Site Condition Data, Tractor and Fireplow, Fire Suppressing Equipment, Torches, Adequate Fuel Supply for Torches.

Enabling Objectives: Know how to operate tractor and equipment.
Know how to interpret weather data.
Know how to operate radios.
Know degree of burn needed.

Performance Guide:

1. Identify area to be burned
2. Check fire lines
3. Check and service all equipment
4. Check pertinent weather data and fuel on site condition
5. Notify headquarters and local fire control people
6. Conduct and evaluate test burn
7. Deploy personnel and execute site prep burn

DUTY: K. CONTROLLED BURNING

TASK: 5. Execute Prescribed Burn

****

Performance Objective: Given materials listed below, execute prescribed burn.

Standard: Burn must be accomplished with minimum of damage to existing pine stand. Burn must control undesirable species and remove wild fire hazard by burning existing fuel on site.

Materials Needed: Aerial Photos, Field Maps Showing Location of Lanes to Establish, Burning Plan, Weather Data, Site Condition Data, Tractor and Fireplow, Fire Suppressing Equipment, Torches, Adequate Fuel Supply for Torches.

Enabling Objectives: Know how to operate tractor and equipment.
Know how to interpret weather data.
Know how to operate radios.
Know degree of burn needed.

Performance Guide:

1. Identify area to be burned
2. Check fire lines
3. Check and service all equipment
4. Check pertinent weather data and fuel
5. Notify headquarters and local fire control people
6. Conduct and evaluate test burn
7. Deploy personnel and execute prescribed burn

DUTY: L. SITE PREPARATION

TASK: 1. Determine Planting Method

****

Performance Objective: Given materials listed below, determine planting method.

Standard: Based on site situation, environmental concerns and land owners objective, determine planting method.

Materials Needed: Aerial Photos, Field Maps showing location of lanes to establish, burning plan, soil sampling equipment, soil survey.

Enabling Objectives: Know environmental hazards involved with different planting methods.
Know advantages and disadvantages of different planting methods.
Know soil type to determine equipment limitations.

Performance Guide:

1. Identify area to be planted, and check for possible erosion hazards, equipment limitations
2. Check site for brush, timber cutting residue or existing trees
3. Check site to determine soil type
4. Make determination as to planting method

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DUTY: L. SITE PREPARATION

TASK: 2. Apply Mechanical Method of Site Preparation

****

Performance Objective: Given materials listed below, apply mechanical method of site preparation.

Standard: Site must be prepared mechanically to enable regeneration by planting (hand or mechanical).

Materials Needed: Aerial Photos, Field Maps Showing Location of Lanes, Equipment Needed for Particular Kind of Site Preparation.

Enabling Objectives: Know how to operate and maintain equipment designed for particular kind of site preparation.
Know environmental hazards.

Performance Guide:

1. Identify area to be site prepped on field map
2. Check and service all equipment
3. Check site for possible hazards
4. Execute type of mechanical site preparation selected such as drum chopping, clearing with V blade, stacking and burning

DUTY: L. SITE PREPARATION

TASK: 3. Apply Chemical Method of Site Preparation

****

Performance Objective: Given materials listed below, apply chemical method of site preparation.

Standard: Site must be prepared chemically to enable regeneration.

Materials Needed: Aerial Photos, Field Maps Showing Location of Lanes, Equipment Needed for Particular Kind of Application, Chemicals, License for Application.

Enabling Objectives: Know how to operate and maintain equipment designed for particular king of site preparation.
Know environmental hazards.
Know chemicals recommended for particular application.
Know applicable laws governing use of recommended herbicides.

Performance Guide:

1. Identify area to be site prepped on field map
2. Check and service all equipment
3. Check site for possible hazards
4. Check wind velocity and direction
5. Check possible sites in surrounding area that might receive damage from chemicals
6. Notify if applicable, proper county and or state officials and surrounding land owners and of residents
7. Prepare and apply chemicals

DUTY: L. SITE PREPARATION

TASK: 4. Inspect Final Site Preparation

****

Performance Objective: Given Materials listed Below, perform final site preparation inspection.

Standard: Inspection must include effectiveness of site preparation based on type of site prep.

Materials Needed: Aerial Photos, Field Maps, Contract or Other Standard for Site Prep.

Enabling Objectives: Know how to evaluate effectiveness of site prep method.

Performance Guide:

1. Identify area on field map
2. Check area prepared for degree of preparedness based on contract or other standard
3. Prepare inspection report

DUTY: M. REGENERATION

TASK: 1. Distribute Seedlings

****

Performance Objective: Given the materials listed below, distribute seedlings.

Standard: Seedlings must be distributed in a manner to assure protection from the elements and to assure that planting crews have sufficient seedlings.

Materials Needed: Aerial Photographs, Field Maps, List of Planting Crews and Assigned Fields, Seedlings.

Enabling Objectives: Know planting crew assignments, fields and acreages, and daily planting capabilities. Know how to protect seedlings from the elements.

Performance Guide:

1. Identify the areas that crews are working on a field map
2. Secure the seedlings
3. Protect the seedlings from the elements before and during transport
4. Distribute the seedlings to the planting crews

DUTY: M. REGENERATION

TASK: 2. Monitor the Contractor's Work

****

Performance Objective: Given the materials listed below, monitor the contractor's work.

Standard: Contractor's work will be monitored to assure that seedlings are protected before and during planting and that seedlings are planted according to specifications and contracts.

Materials Needed: Aerial Photographs, Field Maps, List of Planting Crews and Assigned Fields, Contracts, Planting Specifications.

Enabling Objectives: Know planting crew assignments.
Know how to protect seedlings from the elements.
Know the current planting procedures as listed in the contract and/or planting specifications.

Performance Guide:

1. Identify where the crews are working on the field map
2. Check the seedlings for proper protection on the planting site
3. Spot check the seedlings as they are being planted and after they have been planted
4. Monitor planting crews at different times daily

DUTY: M. REGENERATION

TASK: 3. Perform Final Inspection

****

Performance Objective: Given the materials listed below, perform the final inspection.

Standard: Trees must be planted according to the contract and/or specifications.

Materials Needed: Aerial Photographs, Field Maps, Contract and/or Planting Specifications, Compass, Plotting Equipment, Shovel.

Enabling Objectives: Know the current planting procedure as listed in the contract or planting specifications.
Know proper inspection procedures.

Performance Guide:

1. Identify the area on a field map
2. Establish permanent inspection plots
3. Check for proper planting according to contract and/or planting procedures
4. Check and count seedlings planted correctly at each check point
5. Determine the seedling count (those planted correctly) on a per acre basis
6. Prepare an inspection report

DUTY: M. REGENERATION

TASK: 4. Perform One Year Survival Check

****

Performance Objective: Given the materials listed below, perform a one year survival check.

Standard: Fields must be checked at approximately one year from planting to determine the number of seedlings that have survived.

Materials Needed: Aerial Photographs, Field Maps Showing the Location of Permanent Inspection Plots Established at Planting Time and Information Gathered at Planting, Calculator, Inspection Sheets.

Enabling Objectives: Know survival rate required.
Know simple math.

Performance Guide:

1. Identify the area on the field map
2. Using maps showing the check points established at the time of planting, re-check each plot and count the live trees
3. Using information compiled at planting time at each check point, determine the survival rate
4. After all check points have been checked, determine the survival rate by number on a per acre basis
5. Prepare a survival report

DUTY: N. RECORD MANAGEMENT

TASK: 1. Use Polycorder

****

Performance Objective: Given materials listed below and a polycorder, learn to use a polycorder.

Standard: The polycorder will be used accurately.

Materials Needed: Polycorder

Enabling Objectives: Know how to use a polycorder.

Performance Guide:

1. Learn necessary procedure for using polycorder
2. Learn how to protect and maintain polycorder
3. Tally timber according to established procedures
4. Unload data onto mainframe computer and print

DUTY: N. RECORD MANAGEMENT

TASK: 2. Use Personal Computer for Word Processing

****

Performance Objective: Given the materials listed below, use the personal computer for word processing.

Standard: The personal computer will be used for word processing with 90 percent accuracy.

Materials Needed: Personal Computer, Report or Letter to be Processed, Printer.

Enabling Objectives: Know how to boot up computer and load word processing program.

Performance Guide:

1. Review instructions for preparing the letter or report
2. Turn on, program, and insert appropriate disk into the word processing unit
3. Provide index/reference information on disk
4. Check/adjust set-up of word processing unit to provide desired margins, pitch, and spacing for display and print of the completed report/letter
5. Keyboard the report/letter in continuous typing mode
6. Insert figures and tables (if needed)
7. Merge text (if needed)
8. Paginate report/letter
9. Proofread and correct
10. Print the report

DUTY: N. RECORD MANAGEMENT

TASK: 3. Use Personal Computer for Data Base Management

****

Performance Objective: Given the materials listed below, use a personal computer for data base management.

Standard: The personal computer will be used for data base management with 90 percent accuracy.

Materials Needed: Personal Computer, Financial Reports, Record Books, Proper Computer Software, Printer.

Enabling Objectives: Knowledge of computers, and basic communication skills.

Performance Guide:

1. Develop an outline describing the agribusiness information system in the areas of:
    a. financial accounting
    b. production records
    c. marketing
    d. financial planning
2. List the jobs the computer will be used for
3. Develop a detailed job description for each application in keeping business records and reports
4. Review data base management software computer programs for records and reports which are useful
5. Select software that best matches the computer system to the business needs

DUTY: N. RECORD MANAGEMENT

TASK: 4. Use Personal Computer with Spreadsheet

****

Performance Objective: Given materials listed below, use a personal computer with a spreadsheet.

Standard: The personal computer will be used for spreadsheet applications with 90 percent accuracy.

Materials Needed: Personal Computer, Financial Reports, Record Books, Proper Computer Software, Printer.

Enabling Objectives: Knowledge of computers, and basic communication skills.

Performance Guide:

1. Develop an outline describing the agribusiness information system in the areas of:
   a. financial accounting
   b. production records
   c. marketing
   d. financial planning
2. List the jobs the computer will be used for
3. Develop a detailed job description for each application in keeping business records and reports
4. Review spreadsheet software computer programs for records and reports which are useful
5. Select software that best matches the computer system to the business needs

DUTY: N. RECORD MANAGEMENT

TASK: 5. Maintain All Company Records

****

Performance Objective: Given materials listed below, and all company records, maintain company records.

Standard: All company records will be maintained neatly and accurately.

Materials Needed: Various Business Records, Pen or Pencil, Computer.

Enabling Objectives: Know how to operate computer.
Know how to read and interpret various business records.

Performance Guide:

1. Compile and organize business records used by the agribusiness
2. Review each record to identify needed information and purpose
3. Complete each business record as required
4. File business forms as required
5. If computerized, record information in appropriate file and save on hard of floppy disk, back up as necessary

DUTY: N. RECORD MANAGEMENT

TASK: 6. Maintain Client Records

****

Performance Objective: Given the materials listed below, maintain client records.

Standard: All client records will be maintained neatly and accurately.

Materials Needed: Various Client Records, Pen or Pencil, Computer.

Enabling Objectives: Know how to operate computer.
Know how to read and interpret various business records of your client.

Performance Guide:

1. Establish records of transactions made with each individual client
2. Record timber sales, dates of transactions, locations that were marketed
3. File aerial photographs, topographic maps that could be used for future reference
4. File a long term plan for your clients timber management
5. Keep in touch with client as to what steps in the plan need to be implemented and work within a time frame
6. Being knowledge of your clients timber management needs is a must

DUTY: N. RECORD MANAGEMENT

TASK: 7. Maintain a Daily Log

****

Performance Objective: Given materials listed below, maintain a daily log book.

Standard: Properly maintain a daily log book.

Materials Needed: Pen or Pencil, Daily Log Book.

Enabling Objectives: Know how to record in your daily log book the information that can be recalled at a later date.

Performance Guide:

1. Record information pertinent to your days activities which should include such things as:
    a. tract of timber being worked
    b. cruising information
    c. record current market prices
    d. record marketing alternative strategies
    e. record any insect or disease problems encountered
2. Solicit business from new clientele

DUTY: N. RECORD MANAGEMENT

TASK: 8. Use Calculator

****

Performance Objective: Given the materials listed below, use a calculator effectively.

Standard: The calculator will be used to accomplish necessary mathematical transactions with 100% accuracy.

Materials Needed: Calculator, Mathematical Information to be Computed.

Enabling Objectives: Know how to properly operate a calculator.

Performance Guide:

1. Obtain the calculator needed for the job to be performed
2. Read the instructions relating to all functions of your calculator
3. Insert proper data to be calculated
4. Record calculations in the proper place

DUTY: O. **OPERATE AND MAINTAIN EQUIPMENT**

TASK: 1. Operate and Maintain Light Dozer

****

Performance Objective: Given materials listed below, operate and maintain a light dozer.

Standard: Operate and maintain light dozer according to agency guidelines.

Materials Needed: Dozer, Hard Hat, Leather Gloves, Safety Glasses, Grease Gun, Large Wrench Set, and Dozer Maintenance Manual.

Enabling Objectives: Have a knowledge of operating a light dozer.

Performance Guide:

1. Follow daily maintenance procedures
2. Perform maintenance as needed before operating
3. Make adjustments to dozer as necessary
4. Operate dozer to perform job. (establishing fire lanes, fire control, site preparation for tree planting, control burns)
5. Perform any necessary maintenance while operating dozer
6. Use proper safety precautions

DUTY: O. OPERATE AND MAINTAIN EQUIPMENT

TASK: 2. Operate and Maintain Transport Truck (Roll Back)

****

Performance Objective: Given the materials listed below, operate and maintain transport truck.

Standard: Operating and maintaining a transport truck will be done according to policy.

Materials Needed: Transport Truck, Drivers License, Operators Manual, Fire Extinguisher, Chains, Two-Way Radio, Boomer, First Aid Kit.

Enabling Objectives: Have a knowledge of operating a transport truck.
Be familiar with the operators manual.

Performance Guide:

1. Follow scheduled maintenance procedures for transport trucks
2. Perform maintenance as needed before operating
3. Proceed to operate transport truck according to state, agency and/or company rules and regulations
4. Operate truck to transport equipment or vehicles as needed:
    A. Job sites
    B. Repair shops
5. Perform any necessary maintenance while operating transport truck

DUTY: O. OPERATE AND MAINTAIN EQUIPMENT

TASK: 3. Operate and Maintain Chain Saw

****

Performance Objective: Given materials listed below operate and maintain a chain saw.

Standard: Chain saws will be operated and maintained according to instruction manual procedures.

Materials Needed: Chain Saw, Safety Glasses, Hard Hat, Brush Chaps, Steel-toed Boots, Fuel, Oil, Adjustment Tool.

Enabling Objectives: Have knowledge of the operation of a chain saw.

Performance Guide:

1. Be familiar with operating instruction manual procedures
2. Check adjustments, chain, fuel, oil levels before operating
3. Make adjustments and add fuel and oil (if necessary)
4. Proceed to operate the chain saw following operators manual procedures
5. Maintain chain saw following operators manual procedures
6. Use proper safety precautions

DUTY: O. OPERATE AND MAINTAIN EQUIPMENT

TASK: 4. Operate and Maintain Marking Equipment

* * *

Performance Objective: Given materials listed below, operate and maintain marking equipment.

Standard: All marking equipment will be operated and maintained according to instruction manual procedures.

Materials Needed: Paint Gun, Paint, Flagging, Wood Stakes, Hammer, Vehicle, Hard Hat, and Respirator.

Enabling Objectives: Have a knowledge of harvesting techniques.

Performance Guide:

1. Become familiar with operating manual procedures of marking equipment
2. Perform maintenance as needed before operating
3. Make adjustments to marking equipment as needed
4. Operate marking equipment to perform tasks
5. Perform necessary maintenance to marking equipment after using
6. Use proper safety precautions

DUTY: O. OPERATE AND MAINTAIN EQUIPMENT

TASK: 5. Operate and Maintain Company Vehicles

****

Performance Objective: Given materials listed below, operate and maintain company vehicles.

Standard: Company vehicles will be operated and maintained according to company policy.

Materials Needed: Pick-up Truck, Driver's License, Two-way Radio, Fire Extinguisher, Operator's Manual.

Enabling Objectives: Be able to operate half-ton to one-ton vehicles.

Performance Guide:

1. Become familiar with operator's manual procedures
2. Follow the scheduled maintenance procedures for the vehicle.
3. Perform maintenance as needed before operating
4. Proceed to operate according to state, agency, and/or company rules and regulations
5. Perform job tasks such as checking planting sites, location of wild and controlled fires, infestations of insects and diseases, etc.
6. Perform any necessary maintenance while operating company vehicles
7. Use proper safety precautions

DUTY: O. OPERATE AND MAINTAIN EQUIPMENT

TASK: 6. Operate and Maintain All Terrain Vehicles

****

Performance Objective: Given materials listed below, operate and maintain all terrain vehicles.

Standard: ATV's will be operated and maintained according to instruction manual procedures.

Materials Needed: ATV, Hard Hat, Helmet, Fuel, Oil, Small Tool Kit, Operator's Manual.

Enabling Objectives: Have a knowledge of the operation of an ATV.

Performance Guide:

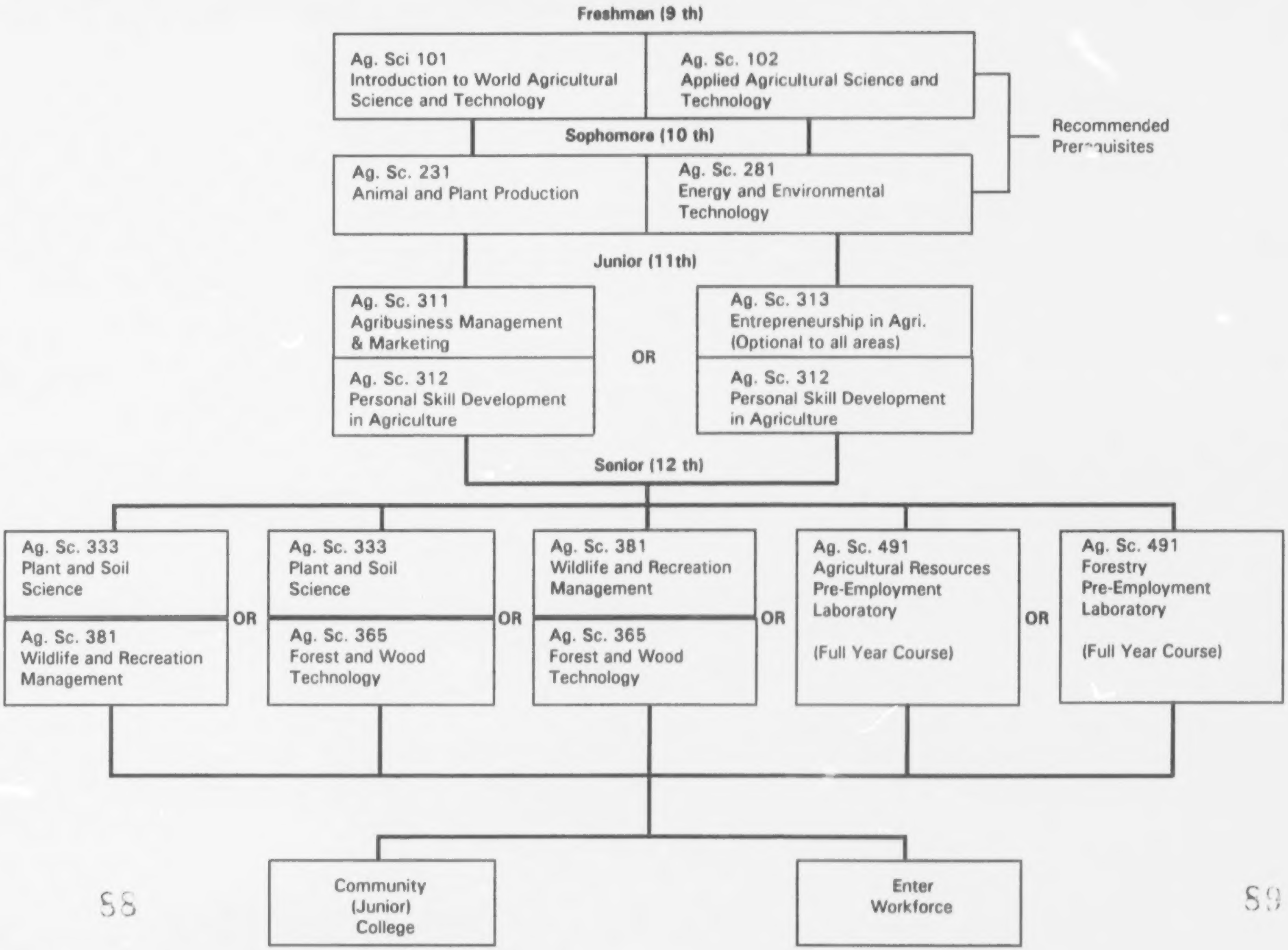
1. Become familiar with operator's manual procedures
2. Follow the scheduled maintenance procedures for the vehicle.
3. Perform maintenance as needed before operating
4. Perform job tasks such as checking planting sites, location of wild and controlled fires, infestations of insects and diseases, etc.
5. Perform any necessary maintenance while operating company vehicles
6. Use proper safety precautions

V. RECOMMENDED SECONDARY AND POSTSECONDARY COURSE OPTIONS FLOWCHARTS

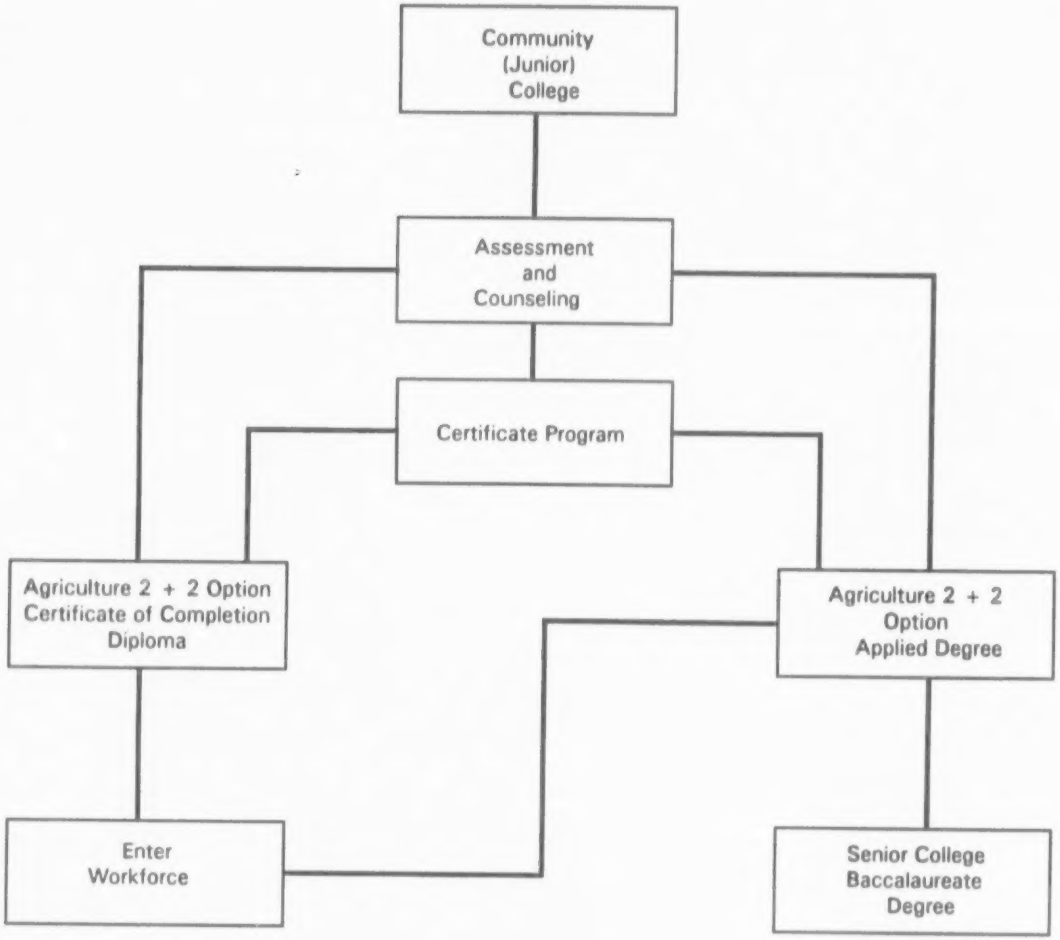
The following flowcharts show the possible courses and routes that a student may take in pursuing a particular 2+2 articulated program.

These charts are examples to be used by other secondary and postsecondary institutions in establishing their own 2+2 agricultural programs.

Agriculture 2 + 2
Natural Resource/Forestry Option


Freshman (9 th)
Ag. Sci 101 Introduction to World Agricultural Science and Technology
Ag. Sc. 102 Applied Agricultural Science and Technology
Recommended Prerequisites
Sophomore (10 th)
Ag. Sc. 231 Animal and Plant Production
Ag. Sc. 281 Energy and Environmental Technology
Junior (11th)
Ag. Sc. 311 Agribusiness Management & Marketing
Ag. Sc. 312 Personal Skill Development in Agriculture
OR
Ag. Sc. 313 Entrepreneurship in Agri. (Optional to all areas)
Ag. Sc. 312 Personal Skill Development in Agriculture
Senior (12 th)
Ag. Sc. 333 Plant and Soil Science
Ag. Sc. 381 Wildlife and Recreation Management
OR
Ag. Sc. 333 Plant and Soil Science
Ag. Sc. 365 Forest and Wood Technology
OR
Ag. Sc. 381 Wildlife and Recreation Management
Ag. Sc. 365 Forest and Wood Technology
OR
Ag. Sc. 491 Agricultural Resources Pre-Employment Laboratory
(Full Year Course)
OR
Ag. Sc. 491 Forestry Pre-Employment Laboratory
(Full Year Course)
Community (Junior) College
Enter Workforce

Agriculture 2 + 2
Natural Resources/Forestry Option
Continued


Community (Junior) College
Assessment and Counseling
Certificate Program
Agriculture 2 + 2 Option Certificate of Completion Diploma
Agriculture 2 + 2 Option Applied Degree
Enter Workforce
Senior College Baccalaureate Degree

VI. RECOMMENDED STUDENT PREREQUISITES

Secondary:

The following secondary plans include both the academic and agricultural recommendations for a student who is interested in pursuing an articulated 2+2 agricultural program. Included are the recommended courses beginning with the freshman year and continuing through grade 12. Students on the regular, advanced, or honors tract may follow this plan; however, students on the regular tract must take some higher math and science courses than may be recommended otherwise.

These plans are based upon a seven period day and the only difference in the three is in the area of Physical Education since choosing one of these three options may affect the courses you would have time to take.

Postsecondary:

These postsecondary plans include both the academic and agricultural course recommendations for the Certificate of Completion Diploma or the applied degree for a student who is interested in the 2+2 agricultural program.

ARTICULATED CURRICULA FOR AGRISCIENCE TECHNOLOGY

Daingerfield High School Forest Technology Option

	HIGH SCHOOL			
SUBJECT	FRESHMAN	SOPHOMORE	JUNIOR	SENIOR
English	English I Regular or Honors *1	English II Regular or Honors *1	English III Regular or Honors *1	English IV Regular or Honors *1
Mathematics	Algebra I	Geometry	Algebra II	Pre-Calculus Honors *1
Science	Biology I	Physical Science	Chemistry I Regular or Honors *1	
Social Studies	United States History Reg. or Honors *1	World Geography	World History	U.S. Govt. & Free Enterprise
Physical Education	Physical Education / Health	Physical Education		
Agriculture Core	Ag. Sc. 101 Ag. Sc. 102			
Agriculture Core		Ag. Sc. 281 Ag. Sc. 231	Ag. Sc. 323 Optional	
Agriculture Specialty			Ag. Sc. 311 Ag. Sc. 312	Ag. Sc. 365 or Ag. Sc. 491
Agriculture Specialty				Ag. Sc. 381 Ag. Sc. 333
Elective	F. A. or Rec. Elective *3	F. A. or Rec. Elective *3	Recommended Elective *4	
Elective			Recommended Elective *4	Computer Elective *2

*1. Students enrolled in the honors program would need to take at least 5 of these courses

*2. Computer course can be selected from the following:
Computer Math
Business Information Processing

*3. Fine Arts Elective can be selected from the following:
(1 credit required for honors and advanced)

Theatre Arts
Introductory Speech
Music History & Literature
Band I-IV (Fall counts for P.E. credit, Spring counts as Fine Arts credit)

*4. Recommended Electives can be selected from the following:

Journalism
Advanced Journalism

Spanish I (Students in honors need to take these
Spanish II *1 courses but regular students may also)

Personal Business Management
Typing I
Record Keeping
Accounting
Advanced Accounting
Introduction to Computer Programming
Psychology
Sociology

ARTICULATED CURRICULA FOR AGRISCIENCE TECHNOLOGY

Daingerfield High School Forest Technology Option

	HIGH SCHOOL			
SUBJECT	FRESHMAN	SOPHOMORE	JUNIOR	SENIOR
English	English I Regular or Honors *1	English II Regular or Honors *1	English III Regular or Honors *1	English IV Regular or Honors *1
Mathematics	Algebra I	Geometry	Algebra II	Pre-Calculus Honors *1
Science	Biology I	Physical Science	Chemistry I Regular or Honors *1	
Social Studies	United States History Reg. or Honors *1	World Geography	World History	U.S. Govt. & Free Enterprise
Physical Education	Band I	Band II	Band III	Band IV
Agriculture Core	Ag. Sc. 101 Ag. Sc. 102			
Agriculture Core		Ag. Sc. 281 Ag. Sc. 231	Ag. Sc. 323 Optional	
Agriculture Specialty			Ag. Sc. 311 Ag. Sc. 312	Ag. Sc. 365 or Ag. Sc. 491
Agriculture Specialty				Ag. Sc. 381 Ag. Sc. 333
Elective	F. A. or Rec. Elective *3	F. A. or Rec. Elective *3	Recommended Elective *4	
Elective	Health		Recommended Elective *4	Computer Elective *2

*1. Students enrolled in the honors program would need to take at least 5 of these courses

*2. Computer course can be selected from the following:
Computer Math
Business Information Processing

*3. Fine Arts Elective can be selected from the following: (1 credit required for honors and advanced)

Theatre Arts
Introductory Speech
Music History & Literature
Band I-IV (Fall counts for P.E. credit, Spring counts as Fine Arts credit)

*4. Recommended Electives can be selected from the following:

Journalism
Advanced Journalism

Spanish I Spanish II *1	(Students in honors need to take these courses but regular students may also)

Personal Business Management
Typing I
Record Keeping
Accounting
Advanced Accounting
Introduction to Computer Programming
Psychology
Sociology

ARTICULATED CURRICULA FOR AGRISCIENCE TECHNOLOGY

Daingerfield High School Forest Technology Option

	HIGH SCHOOL			
SUBJECT	FRESHMAN	SOPHOMORE	JUNIOR	SENIOR
English	English I Regular or Honors *1	English II Regular or Honors *1	English III Regular or Honors *1	English IV Regular or Honors *1
Mathematics	Algebra I	Geometry	Algebra II	Pre-Calculus Honors *1
Science	Biology I	Physical Science	Chemistry I Regular or Honors *1	
Social Studies	United States History Reg. or Honors *1	World Geography	World History	U.S. Govt. & Free Enterprise
Physical Education	Athletics	Athletics	Athletics	Athletics
Agriculture Core	Ag. Sc. 101 Ag. Sc. 102			
Agriculture Core		Ag. Sc. 281 Ag. Sc. 231	Ag. Sc. 323 Optional	
Agriculture Specialty			Ag. Sc. 311 Ag. Sc. 312	Ag. Sc. 365 or Ag. Sc. 491
Agriculture Specialty				Ag. Sc. 381 Ag. Sc. 333
Elective	F. A. or Rec. Elective *3	F. A. or Rec. Elective *3	Recommended Elective *4	
Elective	Health		Recommended Elective *4	Computer Elective *2

*1. Students enrolled in the honors program would need to take at least 5 of these courses

*2. Computer course can be selected from the following:
Computer Math
Business Information Processing

*3. Fine Arts Elective can be selected from the following: (1 credit required for honors and advanced)

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Spanish I (Students in honors need to take these
Spanish II *1 courses but regular students may also)

Personal Business Management
Typing I
Record Keeping
Accounting
Advanced Accounting
Introduction to Computer Programming
Psychology
Sociology

ARTICULATED CURRICULA FOR AGRISCIENCE TECHNOLOGY

Panola College Forest Technician Option - Certificate of Completion Diploma

	POSTSECONDARY	Notes
Hours	**Subject**	
	Trimester I Courses	
96 hrs.	Introduction to Forestry	
174 hrs.	Silviculture I	
150 hrs.	Dendrology	
60 hrs.	Forest Math	
48 hrs.	Forest Communications	
48 hrs.	Forest Drafting	
48 hrs.	Forest Office Machines	
	Trimester II Courses	
108 hrs.	Forest Protection	
158 hrs.	Forest Surveying	
128 hrs.	Forest Mapping	
181 hrs.	Silviculture II	
55 hrs.	Forest Harvesting	
	Trimester III Courses	
300 hrs.	Forest Measurements	
80 hrs.	Forest Business Methods	
80 hrs.	Forest Products	
80 hrs.	Forest Personnel Management/Safety	
84 hrs.	Elements of Wildlife Ecology	
1878 hrs.		

ARTICULATED CURRICULA FOR AGRISCIENCE TECHNOLOGY

Panola College Forest Technology Option - Associate of Applied Science

	POSTSECONDARY			
SUBJECT	YEAR ONE	SEMESTER 1	SEMESTER 2	SEMESTER 3
English		SPE 341 3	ENG 314 3	ENG 315 3
Mathematics		MTH 301 3	MTH 302 3	MTH 343 3
Science		PSC 400 4	BIO 401 4	CHM 402 4
Social Studies		GOV 341 3	ECO 341 3	PSY 303 3
Forestry	One Year of Block Courses in Forest Technician Program			
Forestry				
Forestry				
Forestry				
Forestry				
Elective		CIS 303 3	Free Elect. 3	Free Elect. 3
Total Hours	15	16	16	16

Basics

ENG 314 - Business English I
ENG 315 - Business English II
SPE 341 - Business and Professional Speaking
MTH 301 - College Algebra
MTH 302 - Plane Trigonometry
MTH 343 - Introduction to Statistics
PSC 400 - Physical Science
BIO 401 - Botany
CHM 402 - Introductory Chemistry I
GOV 341 - American Government: State and Local
ECO 341 - Principles of Microeconomics
PSY 303 - General Psychology
CIS 303 - Application Software I
Electives - 6 hours

Forestry Block Courses

Introduction to Forestry
Silviculture I
Dendrology
Forest Math
Forest Communications
Forest Drafting
Forest Office Machines
Forest Protection
Forest Surveying
Forest Mapping
Silviculture II
Forest Harvesting
Forest Measurements
Forest Business Methods
Forest Products
Forest Personnel Management/Safety
Elements of Wildlife Ecology

VII. BASIC COURSE OUTLINES FOR SECONDARY AND POSTSECONDARY

This section includes the basic course outlines for the agriscience courses to be taught at the secondary level and the course outlines for the postsecondary level agriculture courses.

Although this is a 2+2 articulated curriculum, the basic course outlines for the recommended agriculture prerequisites are also included here.

SECONDARY COURSE OUTLINES

Agriscience 101- Introduction to World Agricultural Science and Technology

A. Recognize the Importance of Agriculture in the World

1. Understand Supply and Demand of Food and Fiber
2. Identify the Availability of Renewable and Nonrenewable Agricultural Resources
3. Understand the Impact of Agriculture on the World Economy
4. Describe the Interdependency of Agriculture and Other Segments of Society

B. Explain the Historical Significance of Agriculture

1. Identify Key Developments Shaping Modern Agriculture in the World
2. Identify Key Developments Shaping Modern Agriculture in the United States

C. Recognize the Interdependency of Agriculture and World Politics

1. Identify Factors Affecting World Trade
2. Recognize the Impact of Agriculture as a Political Tool

D. Recognize the Interdependency of Agriculture and the Environment

1. Identify Environmental Concerns in Agriculture
2. List Methods of Protecting the Environment
3. Recognize the Impact of the Environment on Agriculture

E. Explain the Food and Fiber System

1. Explain the Food Chain - from Production to Consumption
2. Explain the Fiber Chain - from Production to Usage

F. Identify Research and Development in Agriculture

1. Understand the Impact of Research and Development and Identify Current Developments in Agricultural Science and Technology
2. Apply Research and Development in the Classroom and Laboratory

G. Explore Career and Other Opportunities in Agriculture

1. Conduct a Career Self-Analysis
2. Recognize the Career Decision-Making Process
3. Develop Job Seeking Skills
4. Identify Full-Time Career Opportunities in Agriculture
5. Identify Part-Time Career Opportunities in Agriculture
6. Identify Avocational Opportunities in Agriculture

H. Develop Personal and Social Skills

   1. Develop Professionalism and Ethics
   2. Use Proper Etiquette and Behavior
   3. Explore Personal Relations
   4. Practice Good Grooming and Health Habits

I. Improve Communication Skills

   1. Understand the Importance of Effective Communication: Speaking
   2. Understand the Importance of Effective Communication: Writing
   3. Improve Communication Skills Through Organized Activities
   4. Utilize the Media for Effective Communication

J. Develop Leadership Skills in Agricultural Science and Technology Through the FFA

   1. Develop Life Skills for Effective Leadership
   2. Explore Opportunities for Leadership Development Through the FFA
   3. Use Democratic Principles in Conducting Effective Meetings
   4. Understand the FFA Organization

K. Examine Personal Financial Management

   1. Discuss the Importance and Procedures of Keeping Accurate Records
   2. Describe the Importance and Use of Budgeting
   3. Describe the Importance and Procedures of Personal Finance

L. Analyze Agricultural Experience Programs

   1. Identify Various Types of Supervised Agricultural Experience Programs
   2. Describe the Characteristics of Successful Supervised Agricultural Experience Programs
   3. Select and Plan Individual Supervised Agricultural Experience Programs

Agriscience 102 - Applied Agricultural Science and Technology

A. Identify Soil Formations

1. Recognize the Importance and Formation of Soils
2. Identify Soil Formations

B. Identify the Nature and Properties of Soils

1. Identify Components and Properties of Soils
2. Recognize Soil Classification Systems

C. Explain Basic Plant Science and Technology

1. Describe Plant Structure and Functions of Plant Parts
2. Discuss Plant Growth and Development: Seed Germination
3. Discuss Plant Growth and Development: Production, Storage, and Use of Food in Plants
4. Outline Plant Genetics
5. Outline Plant Reproduction
6. Discuss Plant Breeding
7. Recognize Plants

D. Explain Basic Animal Science and Technology

1. Explain Animal Growth and Development
2. Describe the Anatomy and Physiology of Animals
3. Identify Breeds and Classes of Livestock and Poultry of Economic Importance to the Community
4. Discuss the Importance of Animal Selection
5. Outline Animal Reproduction
6. Outline Animal Genetics
7. Discuss Animal Breeding

E. Determine Basic Food Science Technology

1. Recognize the Importance of Food Science Technology in the World
2. Determine Trends in World Food Production

F. Explore Agricultural Mechanics

1. Identify Major Areas of Agricultural Mechanics
2. Identify Safety and Laboratory Procedures
3. Perform Basic Skills in Agricultural Construction - Tools
4. Identify Lumber and Compute Bill of Materials
5. Identify and Use Fasteners

G. Recognize the Protection of the Environment

    1. Determine the Effect of Agricultural Chemicals on the Environment
    2. Identify the Requirements for the Proper Use of Agricultural Chemicals
    3. Identify Methods of Protecting the Environment

H. Understand Energy and Water Conservation in Agriculture

    1. Determine Alternative Energy Sources for Agricultural Use
    2. Identify Methods of Conserving Electrical Energy and Combustible Fuels
    3. Explain Methods of Conserving Water

I. Explore Career and Other Opportunities in Applied Agricultural Science and Technology

    1. Conduct a Career Self-Analysis
    2. Identify Career Clusters in Agricultural Science and Technology

J. Understand Experience Programs in Agricultural Science and Technology

    1. Identify the Various Types of Supervised Agricultural Experience Programs
    2. Describe the Characteristics of Successful Supervised Agricultural Experience Programs
    3. Select and Plan Individual Supervised Agricultural Experience Programs

K. Plan and Conduct Leadership Activities in Applied Agricultural Science and Technology

    1. Develop Life Skills for Effective Leadership
    2. Practice Leadership Skills for Agricultural Science and Technology

Agriscience 231 - Animal and Plant Production

A. Determine the Importance of Soil and Its Influence on Society

1. Determine the Influence of Soil
2. Explain the Formation of Soil

B. Identify the Chemical and Physical Properties of Soil

1. Identify Soil Components
2. Identify Soil Properties
3. Recognize Soil Classification Systems
4. Recognize Methods of Soil Sampling

C. Explain the Conservation of Soil for Future Generations

1. Identify Kinds of Soil Erosion
2. Explain the Factors Influencing Soil Erosion
3. Discuss Soil Erosion Control Measures
4. Examine the Fundamentals of Soil Use and Land Management

D. Explain the Conservation of Soil Water for Future Generations

1. Explain the Importance and Loss of Soil Water
2. Discuss Soil Water Drainage
3. Identify Water Requirements of Crops
4. Explain Soil Water Conservation Measures

E. Recognize Methods for Improving Soil Fertility for Agriculture and Home Use

1. Identify Soil Nutrients
2. Recognize Uses and Types of Fertilizer
3. Explain the Importance of Organic Matter
4. Recognize Soil Deficiencies
5. Identify Secondary Nutrients, Micronutrients, and Soil pH

F. Determine the Importance of Plants and Their Influence on Society

1. Determine the Economic Importance of Major Crops
2. Locate Major Areas of Crop Production in the State, Nation, and World
3. Identify Major Crops and Their Uses

G. Describe Plant Anatomy and Physiology

1. Identify Basic Structures and Functions of Plant Parts
2. Explain Seed Germination in Plants
3. Describe Photosynthesis, Storage, and Use of Food in Plants

H. Explain Plant Reproduction

  1. Explain Sexual Reproduction of Plants
  2. Explain Asexual Reproduction of Plants

I. Recognize Plant Nutrient Requirements

  1. Recognize Nutrient Requirements of Plants
  2. Identify Organic and Inorganic Fertilizers - Types, Sources, and Blends
  3. Discuss Methods, Rates, and Timing of Fertilizer Applications and Fertilizer Regulations

J. Select Fundamental Plant Management Techniques

  1. Select Mechanical Techniques of Plant Management
  2. Select Chemical Techniques of Plant Management

K. Determine the Importance of Animals and Their Influence on Society

  1. Examine Classes, Grades, and Numbers of Livestock in the State, Nation, and World
  2. Determine Trends in Production and Consumption of Animal Products

L. Evaluate and Select Livestock, Poultry, and Rabbits Based on Performance, Visual Appraisal, and Pedigree

  1. Evaluate and Select Beef Cattle
  2. Evaluate and Select Dairy Cattle
  3. Evaluate and Select Swine
  4. Evaluate and Select Horses
  5. Evaluate and Select Sheep
  6. Evaluate and Select Goats
  7. Evaluate and Select Poultry
  8. Evaluate and Select Rabbits

M. Evaluate Livestock and Poultry Carcasses and Identify Wholesale and Retail Cuts

  1. Evaluate Livestock Carcasses and Identify Wholesale and Retail Cuts
  2. Evaluate Poultry Carcasses and Identify Wholesale and Retail Cuts

N. Select Fundamental Animal Management Techniques

   1. Select Methods of Safe Handling and Restraining of Domestic Animals
   2. Select Methods of Performing Common Surgical and Immunization Skills Used with Domestic Animals
   3. Select Methods of Identifying Domestic Animals for Ownership
   4. Select Methods of Transporting Domestic Animals

O. Describe the Anatomy and Physiology of Domestic Animals

   1. Describe Circulatory Systems of Domestic Animals
   2. Describe Respiratory Systems of Domestic Animals
   3. Describe Skeletal Systems of Domestic Animals
   4. Describe Muscular Systems of Domestic Animals
   5. Describe Digestive Systems of Domestic Animals
   6. Describe Reproductive Systems of Domestic Animals

P. Recognize Animal Nutrient Requirements

   1. Identify Feed Nutrients for Animals
   2. Identify Classes of Animal Feeds
   3. Identify Feed Additives for Animal Feeds

Q. Manage Records of Soil, Plant, and Animal Related Enterprises

   1. Maintain Records of Soil, Plant, and Animal Related Enterprises
   2. Analyze Records of Soil, Plant, and Animal Related Enterprises

R. Plan and Conduct Leadership Activities Related to Animal and Plant Production

   1. Develop Leadership Skills Related to Animal and Plant Production
   2. Participate in Leadership Skills Related to Animal and Plant Production

S. Explore Career Opportunities in Animal and Plant Production

   1. Identify Careers in Plant and Soil Science
   2. Identify Careers in Animal Science

Agriscience 281 - Energy and Environmental Technology

A. Determine the Importance and Scope of Natural Resources, Energy and the Environment

   1. Identify Various Types of Natural Resources
   2. Determine the Economic Impact of Natural Resources on the Agricultural Economy
   3. Determine the Geographical Distribution of Natural Resources

B. Evaluate Conservation and Environmental Policies

   1. Analyze Historical Factors Affecting Natural Resources
   2. Assess Ecological Controls of Natural Resources
   3. Review Society's Role in Natural Resource Policy
   4. Review Government's Role in Natural Resource Policy

C. Analyze Populations Demographics in Resource Management

   1. Compare Supply to Demand for Natural Resources
   2. Analyze the Growth and Change of World, Nation, and State Population and Its Effect on Natural Resources
   3. Discuss Resource Allocation

D. Recognize the Importance of Land Use Planning

   1. Identify Principles of Land Use
   2. Manage Land for Natural Resource Conservation in Rural and Urban Settings
   3. Examine Land Use Policy Trends

E. Understand Water Resource Management

   1. Apply Hydrology to Resource Management
   2. Manage Surface and Groundwater Properly
   3. Identify Water Needs of Society
   4. Discuss the Planning and Distribution of Water in Texas
   5. Review Legislation Concerning Water Use
   6. Discuss Conservation of Quality Water for the Future
   7. Describe Procedures for the Desalination of Salt Water
   8. Understand Water Rights

F. Identify the Uses of Water in Urban Settings

   1. Identify Uses of Water in Urban Areas
   2. Discuss Home Water Conservation Techniques
   3. Discuss the Impact of Land Use on Water Runoff
   4. Examine the Processes Needed to Insure Water Quality

G. Identify the Uses of Water in Agricultural Settings

1. Identify the Uses of Water in Agricultural Settings
2. Identify Types of Irrigation
3. Discuss Water Conservation Methods Used in Irrigation
4. Identify Agencies Developed to Assist in Water Conservation
5. Illustrate the Use of Water by Animals
6. Recognize the Need to Insure Water Quality for Agriculture

H. Explain Waste Water Management

1. Identify Types of Waste
2. Discuss Techniques Used to Reclaim Waste Water
3. Discuss the Reclamation of Solid Waste
4. Understand the Management of Waste in an Agricultural Setting

I. Recognize the Use of Natural Resources for Energy

1. Identify Natural Resources Used for Energy
2. Identify Agricultural Products Used for Energy
3. Discuss the Use of Renewable Resources for Energy
4. Identify Non-renewable Resources Used for Energy
5. Understand Governmental Policies Affecting Energy

J. Describe Air Quality Improvement

1. Discuss Air Quality Standards
2. Review Agriculture Policies Concerning Air Quality
3. Identify Sources and Effects of Air Pollution
4. Identify Sources and Effects of Noise Pollution
5. Understand Air Pollution Control Programs

K. Determine Methods of Controlling Soil Erosion

1. Identify Sources and Types of Erosion
2. Understand Harmful Effects of Erosion
3. Understand Liability Involved in Erosion Control
4. Review Methods to Control Erosion
5. Understand Erosion Control Governmental Programs

L. Discuss the Identity, Handling, Storing, Disposal, and Safety of Hazardous Materials

1. Identify Hazardous Materials
2. Discuss Safe Handling Procedures for Hazardous Materials
3. Discuss Safe Storing Procedures for Hazardous Materials
4. Discuss Safe Disposal Procedures for Hazardous Materials
5. Understand Hazardous Materials Governmental Programs

M. Explore Career Opportunities in Energy and Environmental Technology

  1. Explore and Identify Career Opportunities in Energy Related Areas
  2. Explore and Identify Career Opportunities in Environmental Related Areas

N. Plan and Conduct Leadership Activities Related to Energy and Environmental Technology

  1. Develop Leadership Skills Related to Energy and Environmental Technology
  2. Participate in Leadership Activities Related to Energy and Environmental Technology

O. Manage Records Related to Energy

  1. Maintain Records Related to Energy and Environmental Technology
  2. Analyze Records Related to Energy and Environmental Technology

Agriscience 311- Agribusiness Management and Marketing

A. Examine Agribusiness Management and its Importance

1. Recognize the Importance of Agriculture
2. Describe the Role and Functions of the Manager
3. Investigate the Process of Management Decision Making
4. Discuss the Value of Setting Goals and Objectives

B. Identify Economic Principles Important to Agribusiness Management

1. Discuss Free Enterprise and Economic Systems
2. Examine Consumer Economics: Supply and Demand
3. Examine Producer Economics: Maximizing Profits

C. Illustrate the Use of Budgeting in Decision Making

1. Categorize Income and Cost of Production
2. Examine the Construction and Analysis of Enterprise Budgets
3. Discuss the Use of Whole Farm Budgeting for Planning
4. Investigate the Use of Partial Budgeting to Analyze Proposed Business Changes

D. Analyze Recordkeeping Procedures

1. List the Parts of a Management Information System
2. Compare Accounting Methods
3. Select an Accounting System
4. Prepare Financial Statements: Balance Sheet, Income Statement, and Cash Flow Statement
5. Analyze the Financial Strength of the Business
6. Review Tax Records and Returns
7. Identify Important Production Records
8. Evaluate Production Records

E. Discuss the Acquisition of Capital Resources

1. Compare Methods of Obtaining Capital Resources
2. Identify the Importance and Types of Credit
3. Determine the Institutions that Provide Agricultural Loans
4. Review Loan Application Forms
5. Compare Methods of Computing Interest
6. Compare Types of Loans

F. Explain Business Related Laws

1. Compare Business Types
2. Interpret Common Agricultural Laws
3. Examine Important Government Regulations
4. Review Common Legal Documents

G. Review Methods of Reducing Risk

    1. Identify Risk Management Techniques
    2. Identify Types of Insurance Available
    3. Discuss Sources of Insurance

H. Examine Government Policy Toward Agriculture

    1. Review Past Agricultural Policies
    2. Discuss Recent and Future Government Policies Toward Agriculture

I. Study the Marketing of Agricultural Products

    1. Discuss the Purpose and Importance of Marketing
    2. Discuss the Competitive Environment
    3. Discuss Factors that Influence Market Decisions: Foreign and Domestic
    4. Compare Types of Agricultural Markets
    5. Identify Marketing Alternatives for Production Agriculture
    6. Discuss Forward Contracting: Cash and Futures
    7. Review the Effects of Government Programs and Regulations

J. Examine the Application of Computers to Agribusiness Management

    1. Discuss Appropriate Uses for Computers
    2. Utilize Decision Aid Software
    3. Utilize Computerized Recordkeeping Systems
    4. Identify Guidelines for Selecting a Suitable Computer System

K. Describe the Management of Human Resources

    1. Analyze Employee Benefits
    2. Describe the Employer/Employee Relationship

L. Explore Career Opportunities in Agribusiness Management

Agriscience 312 - Personal Skill Development in Agriculture

A. Discuss Personal Development

1. Develop a Positive Self Concept
2. Develop Social Skills
3. Project a Professional Image

B. Describe an Effective Leader

1. Determine the Traits of a Good Leader
2. Contrast Leadership Styles

C. Develop Leadership Ability

1. Realize Personal Leadership Potential
2. Understand Basic Human Needs
3. Motivating and Influence People
4. Prepare Resumes and Applications

D. Describe Employee Responsibilities

1. Prepare for Job Interviews
2. Describe Employer Expectations
3. Recognize the Importance of Work Related Ethics
4. Get Along with Co-Workers

E. Describe Employer Responsibilities

1. Evaluate Job Applicants
2. Evaluate Employee Performance
3. Develop an Effective Complaint and Appeals Procedure
4. Recognize Employer Responsibilities
5. Recognize the Importance of Business Related Ethics

F. Develop Communications with Groups and Individuals

1. Improve Written Communications
2. Improve Verbal Communications
3. Improve Non-Verbal Communications
4. Participate in Group Discussions
5. Conduct a Successful Meeting
6. Work with Diverse Groups
7. Remove Barriers to Communication
8. Listen Effectively
9. Make Friends

G. Demonstrate Group and Individual Efficiency

1. Develop a Program of Work
2. Organize Groups
3. Establish Personal Goals
4. Manage Time
5. Make Decisions
6. Solve Problems

Agriscience 381 - Wildlife and Recreation Management

A. Analyze the Importance of Wildlife Management

1. Understand the Ecological Benefits of Wildlife
2. Understand the Economic Benefits of Wildlife
3. Identify the Aesthetic Benefits of Wildlife

B. Describe the History of Wildlife and Fish Management

1. Identify Historical Aspects of Wildlife Management
2. Identify the Historical Development of Fish Management

C. Discuss Policies, Laws, and the Administration of Wildlife Management

1. Identify State and Federal Agencies in Wildlife Conservation
2. Review State and Federal Laws Concerning Wildlife (Including Hunting Leases)
3. Identify Policies Affecting Wildlife
4. Discuss Hunter Safety

D. Identify the Basic Ecological Concepts

1. Understand Ecosystems
2. Understand Carrying Capacity and Population Effects

E. Identify Wildlife and Fish Species

1. Examine Animal Species, Including Fur Bearers
2. Identify Fish Species (Fresh and Salt Water)
3. Identify Fowl Species
4. Identify Exotic Game

F. Understand the Management of the Wildlife and Fish Population

1. Explore Water, Food, and Cover Requirements of Wildlife
2. Examine and Develop Habitats for Wildlife Production
3. Discuss the Management of Wildlife Populations
4. Discuss the Management of Fish Populations

G. Identify Special Areas of Importance in Wildlife and Fish Management

    1. Identify Non-game and Endangered Species
    2. Discuss the Importance of Using Genetics to Improve Wildlife
    3. Discuss Commercial Game and Fish Enterprises
    4. Review Procedures for Handling Misplaced Wildlife

H. Acquire Knowledge Concerning the Use of Natural Resources for Outdoor Recreation

    1. Identify Recreational Enterprises
    2. Identify Methods of Developing Recreational Enterprises
    3. Discuss the Management of Recreational Enterprises
    4. Review State and Federal Policies Concerning Recreational Activities

I. Explore Career Opportunities in Wildlife and Recreation Management

    1. Identify Careers Opportunities in Wildlife Management
    2. Identify Career Opportunities in Outdoor Recreation Management

J. Plan and Conduct Leadership Activities Related to Wildlife and Recreation Management

    1. Develop Leadership Skills Related to Wildlife and Recreation Management
    2. Plan and Conduct Leadership Activities Related to Wildlife and Recreation Management

K. Manage Records Related to Energy

Agriscience 491 - Pre-Employment Laboratory in Forest Products Harvesting

I. Introduction to Forestry

A. Review of Forestry in the United States
B. Importance of Forestry
C. Multiple-Use Concept of Forests
D. Beneficial Influences of Forests

II. Occupational Opportunities in Forestry

A. Employment Opportunities in Forestry Occupations
B. Organizations which Employ Persons Trained in Forestry
C. Employment Policies
D. Choosing an Occupation
E. Finding a Job and Preparing for an Interview
F. Employee - Employee and Employee - Employer Relations
G. Employee Benefits and Payroll Information

III. Forest Trees

A. Tree Physiology
B. Tree Identification (Dendrology)
C. Stages of Tree Identification
D. Tree Crown Classification

IV. Forest Environment

A. Physical Factors
B. Biological Factors
C. Geology and Forest Soils
D. Forest Ecology
E. Forest Types and Density

V. Wood Characteristics, Identification, and Uses

A. Wood Characteristics
B. Wood Identification
C. Commercial Trees of Texas and Their Uses
D. Species of Localized Importance

VI. Forest Protection

A. Forest Fires
B. Insects of the Forest
C. Diseases of Forest Trees
D. Injury by Animals
E. Weather Damage
F. Controlling Undesirable Species
G. Safe Use of Chemicals
H. Safety in Fire Fighting

VII. Reforestation

A. Natural Reforestation
B. Artificial Reforestation
C. Source of Seedlings
D. Guidelines for Planting Trees
E. Care of the Plantation

VIII. Applied Silviculture

A. Systems of Cutting
B. Specialized Tree Production
C. New Varieties (Cross Pollination)

IX. Forestry Measurements

A. Land Surveying
B. Tree Volumes
C. Log Measurements and Grades
D. Cruising and Estimating Timber
E. Safe Practices in Forest Measurement Operations

X. Forest Management and Economics

A. Forest Management Activities (Planning forest utilization and protection, devising forest plans: planning forest operations including: mensuration, road systems, logging, salvaging dead and diseased timber, timber growing, soil conservation, water conservation, wildlife protection, forage for livestock, and recreational areas; and administration of forest operations)
B. Commercial Considerations (Costs of forest land, cost of timber growing practices such as taxes, land use value, etc., and costs of marketing timber)

XI. Timber Harvesting

- A. Planning the Timber Harvest
- B. Purchasing Stumping
- C. The Harvesting Operation
  (Felling and bucking, skidding and pre-hauling, loading, hauling, and labor for harvesting operations)

XII. Forest Products Utilization

- A. Primary Wood Products
  (Sawlogs, lumber, pulpwood, fence posts, poles and piling, railroad ties, mine timbers, plywood, and veneer)
- B. Lumber Manufacturing
  (Sawmill layout, lumber grading, and seasoning lumber)
- C. Manufactured Products Other Than Lumber
  (Wood construction products, furniture, containers, fuel, and chemically derived products)
- D. Wood Preservation

XIII. Business Methods Relating to Forestry

- A. Business Aspects of Forestry
  (Forest business records, timber sales, stumping appraisal and value, and management costs)
- B. Taxation
  (Property tax, ad valorem tax, yield tax, and tax assessments)
- C. Forest Laws
- D. Real Estate
  (Property rights, contracts, deeds and conveyances, mortgages, leases, liens, property evaluation, sales, and title searching and registration)

XIV. Agricultural Leadership

- A. The Future Farmers of America
- B. Parliamentary Procedure

Agriscience - 365
Forestry and Wood Technology

Course Description: A course designed to familiarize the student with the forestry industry. Technical skills will be developed in the areas of dendrology, biometrics, management, utilization, and research. Additional skills will be developed for safe work practices, recordkeeping, career exploration, and leadership.

A. Explore the Historical Significance of Forestry

  1. Review pre-management era (utilization era) - prior to year 1900
  2. Describe management era (federal Assistance era) - year 1900 and later

B. Identify and Practice Forestry Dendrology Skills

  1. Recognize tree morphology

     a. Parts of the tree
     b. How the tree grows

  2. Identify leaves

     a. Margins
     b. Venation
     c. Shapes
     d. Arrangements
     e. Types (simple, compound, etc.)
     f. Keying trees

  3. Identify bark, twigs, and buds

     a. Arrangements
     b. Colors
     c. Textures
     d. Keying trees

  4. Identify Wood

     a. Colors
     b. Textures (porosities)
     c. Odors

C. Identify and Practice Forestry Biometrics Skills (Mensuration Techniques and Tools)

  1. Calculate tree volume (board feet, cordage, and tonnage)
  2. Determine timber growth and yield (site index, productivity, growth tables, etc.)
  3. Cruise timber stands (compass and pacing methods plus estimating value)

D. Perform Forestry Management Skills

1. Examine management options

   a. Selection (selective thinning) (uneven age method)
   b. Plantation (clear cutting) (even age method)
   c. Regeneration (seeding)
   d. Specialty tree crops

2. Evaluate multiple-users

   a. Watersheds
   b. Recreational areas
   c. Wildlife
   d. Products

3. Compare/contrast forest prescriptions

   a. Timber stand improvement (TSI)
   b. Fire
   c. Chemical
   d. Pre-commercial thinning

4. Identify and control insects and diseases of southern pine forests
5. Locate sources of management assistance (public, private, and institutional)

E. Recognize Pine and Hardwood Forests Utilization Practices

1. Discuss harvesting practices (equipment/safety)
2. Describe merchandising practices (marketing/sales)
3. Identify primary manufacturing practices/products

   a. Lumber
   b. Plywood
   c. Composites
   d. Paper
   e. Other: biomast, firewood, tool handles, baskets, etc.

4. Examine secondary manufacturing practices/products

   a. Treating
   b. "Shakes"
   c. Others: chips, sawdust for fuel, bedding, bark mulch, etc.

F. Identify Research in Forestry and Wood Technology

1. Recognize current research developments
2. Apply research and development in the classroom and laboratory

G. Recognize Safe Word Practices That Apply to Forestry and Wood Technology

1. Identify personal safety measures
2. Use safe work practices in forestry and wood science

H. Manage Records Related to Forestry and Wood Technology

1. Maintain records related to forestry and wood technology
2. Analyze records related to forestry and wood technology

I. Explore Career Opportunities in Forestry and Wood Technology

1. Identify careers in forestry and wood technology
2. Identify activities of a professional forester

J. Plan and Conduct Leadership Activities Related to Forestry and Wood Technology

1. Develop leadership skills related to forestry and wood technology
2. Participate in leadership activities related to forestry and wood technology

Agriscience 491 -
Pre-Employment Laboratory Training in Agricultural Resources

I. Introduction to Agricultural Resources

- A. Identifying Agricultural Resources in the Community, State, and Nation
  1. Land
  2. Water
  3. Air
  4. Fish and Other Aquatic Life
  5. Wildlife
  6. Outdoor Recreation
  7. Forestry

- B. Determining the Importance and Economic Impact of Agricultural Resources in the Community, State, and Nation

II. Occupational Opportunities in Agricultural Resources

- A. Identifying Occupations in the Agricultural Resources Areas
- B. Employment Opportunities and Occupational Requirements
- C. Choosing an Occupation
- D. Finding a Job and Preparing for an Interview
- E. Employee-Employee and Employee-Employer Relations
- F. Employee Benefits and Payroll Information

III. Agricultural Leadership

- A. The FFA
- B. Parliamentary Procedure

IV. Land Resource Management

- A. Introduction to the Real Estate Industry
- B. Real Estate Instruments (Deeds and Conveyances)
- C. Real Estate Ownership
- D. Real Estate Appraisal
- E. Real Estate Licensing
- F. Real Estate Sales
- G. Real Estate Finance (Credit)
- H. Real Estate Brokerage
- I. Planning and Zoning Laws and Restrictions

V. Water Resource Management

- A. Clean Water Resource Management
    1. Clean Water Resources
    2. Surface Water Rights
    3. State Water Development Plan
    4. Local Water Development System
    5. Water Plan Operations Licensing
    6. Irrigation Water

- B. Waste Water Resources Management
    1. Sewer Systems
    2. Water Pollution in Lakes and Streams
    3. Treating Waste Water
    4. Laws and Regulations

VI. Air Resource Management

- A. Source and Effect of Air Pollutants
- B. Air Quality Standards
- C. Administration and Monitoring
- D. Air Pollution Control
- E. Community Action Programs

VII. Managing Fish and Other Aquatic Life

- A. Identification for Game and Non-Game Fish
- B. Establishing and Managing Fish Ponds
- C. Managing Lakes and Streams
- D. Laws and Regulations Concerning Fish
- E. Resources
- F. Equipment Used in Recreation and Commercial Fishing
- G. Commercial Catfish Production
- H. Fish Hatchery Operations
- I. Shrimp Operations
- J. Oyster Operations
- K. Marina Operations

VIII. Managing Wildlife and Wildlife Environment

- A. Identification of Animal and Bird Species
- B. Managing Wildlife Populations
- C. Wildlife Conservation
- D. State and Federal Agencies in Wildlife Conservation
- E. State and Federal Laws and Regulations
- F. Hunting Leases

IX. Outdoor Recreation

A. Recreational Use of Natural Resources
1. Demand for Recreational Enterprises
2. Kinds of Recreational Enterprises

B. Developing Recreational Enterprises
1. Campgrounds and Picnic Areas
2. Water Recreation (Swimming, Skiing, Sailing, Canoeing, Rowing, Boating, and Fishing)
3. Marinas
4. Swimming Pools
5. Golf Courses
6. Archery Ranges
7. Hiking and Riding Trails
8. Hunting Preserves
9. Riding Stables
10. Dude Ranches

C. Administration of Recreational Enterprises (Business Procedures, Legal Restrictions, Public Relations, Employment, Insurance, and Income Tax)

D. Maintaining and Operating Recreational Enterprises
1. Soils
2. Shrubs
3. Grasses
4. Roads
5. Housing
6. Landscaping

E. Securing Technical Assistance

F. Arranging for Financial Assistance (Credit)

G. State and Federal Recreational Enterprises

X. Forest Resource Management

A. Importance of Forestry
B. Kinds of Forests
C. Tree Identification
D. Establishing the Forest
E. Improving the Forest
F. Forest Memsuration
G. Forest Insect and Disease Control
H. Forest Fire Control
I. Forest Recreation
J. Forest Wildlife

XI. Agricultural Resource Safety

- A. Hunter's Safety Course
- B. Texas Skippers Course
- C. Red Cross Basic Outdoor Boating
- D. Standard First Aid and Personal Safety
- E. Fire Fighting Safety

XII. Agricultural Resource Mechanics

- A. Chain Saws
  - 1. Selection
  - 2. Operation
  - 3. Safety
  - 4. Maintenance
  - 5. Repair

- B. Boats and Boating Equipment
  - 1. Boat Design and Construction
  - 2. Boat Operation and Maintenance
  - 3. Boat Repair
  - 4. Boat Motor Design and Selection
  - 5. Boat Motor Trouble Shooting and Repair
  - 6. Boat Trailer Design and Selection
  - 7. Boat Trailer Operation and Maintenance
  - 8. Boating Safety Regulations
  - 9. Boating Safety Equipment Selection and Use

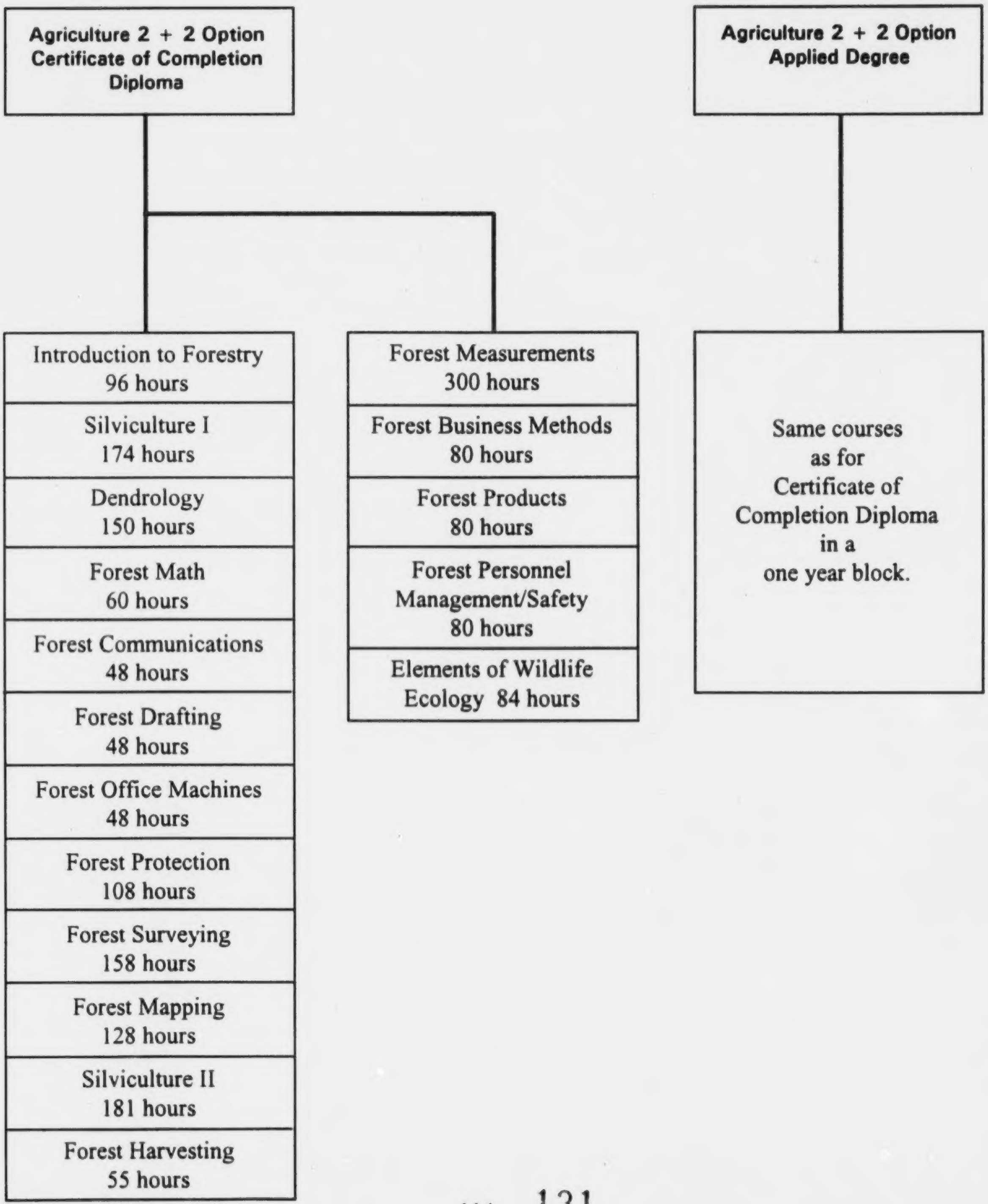
- C. Recreational Vehicles
  - 1. Mobile Homes (Design, Construction, Selection, Location, Delivery and Set-Up, and Maintenance)
  - 2. Campers (Design, Construction, Selection, Regulations, Maintenance, and Safety)
  - 3. Trail Bikes

- D. Electricity

XIII. Taxidermy

POSTSECONDARY COURSE OUTLINES

AGRICULTURE 2 + 2
Forest Technician Option
Panola College



Agriculture 2 + 2 Option
Certificate of Completion
Diploma

- Introduction to Forestry 96 hours
- Silviculture I 174 hours
- Dendrology 150 hours
- Forest Math 60 hours
- Forest Communications 48 hours
- Forest Drafting 48 hours
- Forest Office Machines 48 hours
- Forest Protection 108 hours
- Forest Surveying 158 hours
- Forest Mapping 128 hours
- Silviculture II 181 hours
- Forest Harvesting 55 hours

- Forest Measurements 300 hours
- Forest Business Methods 80 hours
- Forest Products 80 hours
- Forest Personnel Management/Safety 80 hours
- Elements of Wildlife Ecology 84 hours

Agriculture 2 + 2 Option
Applied Degree

Same courses as for Certificate of Completion Diploma in a one year block.

I. INTRODUCTION TO FORESTRY (96 hours/ 65 percent field applications)

A. Introduction to forestry and the natural resource field.
   1. The role of forestry and natural resources in meeting the needs of society.
   2. Familiarization with terminology.
   3. Historical development of conservation in North America.
   4. Key individuals involved with natural resources.

B. Location of Forests.
   1. Location of the world forest regions.
   2. Location of North American forest regions.
   3. Location of U.S. forest types.
   4. Location of the forest types of the Southern region with emphasis on the Western Gulf Region.

C. Overview of the role of forest products in local, regional, and national economics.

D. Forest policy, key legislation, and laws.

E. Federal agencies directly involved in natural resource management.

F. State agencies directly involved natural resource management.

G. The practice of forestry on private lands.
   1. Industrial lands.
   2. Non-industrial lands.

H. Forestry education.

I. The effects of environmental issues on forestry.

J. The role of forests and forestry in the future.

II. SILVICULTURE I (175 hours/ 65 percent field applications)

This course is also called Silvics, Forest Biology, or Forest Science. The primary function is to study information from the areas of general and forest ecology, plant physiology, soils, meteorology, physical science, and field biology methods.

A. Introduction to forest science.
   1. Terminology and basic scientific principles.
   2. Outline of general ecology.

B. Plant physiology and morphology.

C. The forest environment.
   1. Factors of sunlight.
   2. Factors of atmospheric moisture.
   3. Factors of air movement and temperature.
   4. Factors of climate and weather.
   5. Factors of topography.
   6. Factors of soils.

D. Forest influences.
   1. Effects on physical environment.
   2. Effects on animal life.

E. The forest
   1. Vegetative units and their classifications.
   2. Origin and development of forest communities.
   3. Soil-site-environment-plant relationships.
   4. Form and life of trees.
   5. Development, growth, and yield of trees and forest stands.

F. Environmental Impact Statements.

III. DENDROLOGY (150 hours/ 65 percent field work and applications)

A course designed to educate the student of forest plant identification. Plants (trees, shrubs, and vines) will be those of importance for timbering, landscaping, wildlife habitat, and environmental quality. While, trees from all over North America will be covered the main focus will be on plants of the western gulf region. The use of common names and scientific names will considered important. Plant geography together with commercial and non-commercial uses of the plants covered will be emphasized.

A. Introduction
   1. Review of plant anatomy, especially leaf and twig features.
   2. Introduction into the use of identification keys.

B. Plant families will be covered with breakdown into genus and species. Shrubs and vines which are found in the local region will be covered.

C. Plant uses for wood, medicinal, wildlife, ornamental, and other uses current or historical will be covered.

D. Site relationships of plants and their environments will be used to stress identification of plants.

E. Leaf and twig collections will be required.

F. Fruit identification will be studied.

VIII. FOREST PROTECTION (108 hours of instruction/ 65 percent in laboratory or field applications)

This course is designed to present each student with a basic understanding of the work necessary to protect the forest from its many enemies, both natural and man-caused. These include fire, insects, disease, animals and environmental problems.

A. General introduction to protection

B. Forest Fire Protection
   1. Place of fire protection in forestry and the history of fire problems
   2. Causes and effects of wild fires
   3. Fire Fuels
   4. Presuppression activities--education, laws, detection systems, and rating systems
   5. Supression activities--equipment, supplies, fire fighting organizations, and training
   6. Fire analysis and economics

C. Forest Insect Protection
   1. Description of insects and symptoms
   2. Identification of insects and problems, including field surveying methods
   3. Analysis of extent of damage to plant/forest
   4. Prevention and/or control measures

D. Forest Disease Protection
   1. Description of diseases and symptoms
   2. Identification of diseases and problems, including field surveying methods
   3. Analysis of extent of damage to plant/forest
   4. Prevention and/or control measures

E. Protection from animals and man
   1. Description of problems created by animals and man
   2. Identification of extent of damage and problems, including field surveying methods
   3. Analysis of the affected resource
   4. Prevention and/or control measures

F. Protection from environmental factors
   1. General description of the problems and symptoms
   2. Identification of the problems and probable sources of damage
   3. Prevention and/or control measures

IX. FOREST SURVEYING (158 hours of instruction/ 65 percent in field or laboratory applications)

The main objectives of this course is to produce good work habits; a basic knowledge of the equipment and methods used in surveying; and an appreciation for accurate and neat work. With the knowledge of this one course, any forest technician student should be able to find work with a field surveying crew.

A. Surveying systems
   1. History of land surveying--national and regional
   2. Knowledge of the "Metes and Bonds" system
   3. Knowledge of the "Glo" system

B. Surveying terminology

C. Surveying legal problems and procedures

D. Note keeping in field books

E. Surveying equipment
   1. Hand compasses
   2. Staff compasses
   3. Hand levels
   4. Transits
   5. Tapes and Chains
   6. Plane tables
   7. Stadia

F. Measurement of directions, angles and distances

G. Deeds--both location and writing

H. Field surveys
   1. Boundary
   2. Topographic
   3. Road and/or trail layout

I. Levels
   1. Differential
   2. Profile
   3. Borrow-pit
   4. Topographic

J. Area calculations

X. FOREST MAPPING (128 hours of instruction/ 65 percent in laboratory and field instruction)

This course will combine the elements of map reading, map use, and map preparation. Skills begun in the Forest Drafting course will be utilized in this course. Field work from the Forest Surveying and Silviculture courses will provide much of the work assignments for this course. The use of aerial photogrammerty will be covered along with this work in natural resources.

A. Basic map skills
   1. Knowledge of reading maps and their symbols and use of the scales
   2. Ability to use maps and aerial photos to locate places in either the field or office
   3. Type of information needed to draw and/or read maps

B. Basic map preparation
   1. How to develop maps from deeds, survey books or other sources of information
   2. How to prepare sketch maps for field crews

C. Aerial photogrammerty
   1. Introduction to the making and use of aerial photos in natural resource work
   2. How to use aerial photos in natural resource problems--protection problems, planting projects, etc.
   3. How to order and obtain aerial photo coverage

Much of the field work in this course will be done in an indoor setting. The use of the drawing equipment and stereoscopes will occupy a great deal of the field work. There will be work in orientering to learn the use of maps in the field.

XI. SILVICULTURE II (181 hours of instruction/ 65 percent in field applications)

The first course in Silviculture was the basic science course; while this is mainly the applications portion of the field. The science knowledge coupled with the field methods, applications, and equipment is the main portion of much of field forestry.

A. Reforestation
   1. Site preparation
   2. Seeding and planting procedures
   3. Seedling survival studies
   4. Nursery and seed orchard operations

B. Timber Stand Improvement (TSI) programs
   1. Commercial thinning methods
   2. Prescribed burning
   3. Pruning operations
   4. Pre-commercial thinning operations
   5. Use of chemicals to control unwanted vegetation
   6. Fertilization, drainage, etc.

C. Harvesting mature timber crops
   1. Using artificial regeneration methods

D. Timber marking

E. Managing minor forestry products
   1. Christmas trees
   2. Other minor products

F. Bottomland and upland hardwood management

XII. FOREST HARVESTING (55 hours of instruction/ 65 percent involved with field or laboratory work)

This course is designed to provide the student with a general knowledge of the equipment, terminology, methods of timber removal and the legal aspects of the timber harvesting industry.

A. Introduction to harvesting
   1. The history of the American logging industry
   2. Development of the methods and equipment of the industry
   3. Planning the harvesting of timber crop
   4. Equipment used in harvesting the crop

B. Types of timber crops and their harvesting
   1. Pulpwood
   2. Sawtimber
   3. Specialty products

C. The processing of timber crops
   1. Felling
   2. Limbing and bucking
   3. Skidding and loading
   4. Transportation

D. Organization and control of harvesting operations

E. Regional harvesting practices

F. Environmental concerns (BMP--Best Management Practices)

G. Timber procurement systems

Most of the field work will be involved with viewing what was covered in the classroom lectures, films, slides, and videos. Making safety inspection and harvesting analysis will be part of the field work. With the increased awareness on the environment, it is important that forest technicians understand the requirements in the BMP Guidelines. Some basic training in the safe use and maintenance of chain saws (bow and bar models will be part of the field operation). The evaluation process will be covered by tests and reports.

XIII. FOREST MEASUREMENTS (300 hours of instruction with 65 percent of the instruction in field applications)

This course is the most singularly important course in the entire program and will serve to put many parts of the program together.

A. Sampling, estimation and probability
   1. Statistical concepts
   2. Common sampling designs
   3. Specialty sampling designs

B. Timber measurements
   1. Measurements
   2. Estimating the dimensions of standing trees

C. Volume tables
   1. Volume rules--board foot, cubic foot, metric
   2. Stock and stand tables
   3. Yield tables

D. Timber and resource cruises
   1. Basic resource cruises
   2. Timber and/or land acquisition
   3. Timber management plan inventory
   4. Tax and/or damage appraisal
   5. Continuous forest inventory systems
   6. Other timber resources

E. Scaling and measuring primary and secondary wood products

F. Timber inventory systems
   1. Plot sampling
   2. Strip sampling
   3. Point sampling
   4. Random versus systematic sampling systems

G. Sampling of other natural resources
   1. Wildlife resources
   2. Range resources
   3. Water resources
   4. Environmental resources
   5. Recreational resources

A large portion of the field work will be done out-of-doors in the actual collection of timber data. Almost an equal amount of time will be involved with laboratory work used to prepare the field data for use by the professional forestry staff. There will be tests to determine the students' abilities in estimating diameters, heights, and other resource factors that will facility speed of operations.

XIV. FOREST BUSINESS METHODS (80 hours of instruction/ 65 percent in field or laboratory applications)

This is the combination of Forest Economics, Forest Management, Forest Finance and Valuation, and Forest Law. The objective is to give each student the necessary information needed to develop management plans, project timber growth, determine cutting cycles, and write basic reports.

A. Forest Management
  1. Management plans
  2. Stand table projections, stocking tables, and other information to regulate forest growth and yield
  3. Establishing rotation and annual yields
  4. Even-aged versus all-aged forest management

B. Forest Economics
  1. Supply and demand economy
  2. Marginal operations
  3. Project costing

C. Forest Finance and Valuation
  1. Forest valuation--land and/or timber
  2. Compound interest--present and future value
  3. Valuation of various forest resources

D. Forest Law

XV. FOREST PRODUCTS (80 hours of instruction/ 65 percent field and laboratory applications)

The objective of this course is to inform the forest technician of the various products that are derived from the raw materials grown in the woods; as well as, the secondary products made from the primary products, their waste, or other areas of the forests. It also stresses the importance of maintaining good resource management programs in the field to provide quality products.

A. Forest utilization economics

B. Wood products
   1. Round timbers products
   2. Mine and railroad timbers
   3. Hardwood and pine lumber
   4. Wooden containers and pallets
   5. Composite wood products
   6. Minor wood products

C. Chemically derived products and products from chemically altered materials from the forest
   1. Pulp and paper products
   2. Chemically derived products
   3. Naval stores
   4. Minor products

D. Product grading and quality control organizations

E. Glues and adhesives

F. Seasoning and preservation

G. Merchandising of forest products

XVI. FOREST PERSONNEL MANAGEMENT AND SAFETY (80 hours of instruction/ 65 percent will be field or laboratory in nature)

With the rising cost of workman compensation insurance; the hospitalization and health insurance companies are stressing safety training at all levels of their organizations. Attention is given to field personnel, as normally graduates of the Panola's Forest Technician Program quickly gain foremanship positions and become a part of the management system. These individuals also are marked to take key leadership roles in directing field operations and are often into foremanship positions quickly.

A. Safety Training
   1. Safety talks--materials and presentations
   2. Red Cross First Aid and CPR training
   3. Conducting safety inspections
   4. OSHA Standards
   5. Other safety and health standards of the forest and forest products industry

B. Personnel management
   1. Personnel supervision methods
   2. Foremanship
   3. Labor relations
   4. Record systems and documentation

XVII. ELEMENTS OF WILDLIFE ECOLOGY (84 hours of instruction/ 65 percent field and laboratory applications)

The objective of this course is to provide a basic understanding of the general ecology principles and timber management practices as they would be applied to wildlife management. Work will be done in conjunction with the Texas Parks and Wildlife Department and private industrial timber companies whenever possible.

A. Wildlife ecology
   1. History of key people and laws
   2. Terminology
   3. Habitat management principles

B. Types of wildlife

C. Wildlife production and regulation policies
   1. Preserves
   2. Exotic animals
   3. Lease operations
   4. Harvesting laws and regulations
   5. Federal and state enforcement policies
   6. Endangered species
   7. Predator control

D. Habitat types and food stuffs

IV. FOREST MATH

This math course is strictly for the forestry student. The topics of general math through and including the basics of algebra, solid geometry, and plane trigonometry are covered. elementary forest statistics are presented. Pre-testing is conducted to determine the class and individual levels at the beginning of the course. Individual instruction programs are designed for those with weaker math skills through the use of a lab period to bring them up to the functional levels needed to perform the general tasks of a forest technician. Lectures, sample problems, homework, and in-class drills are used and count at least 50 percent of the grade. The other half comes from exams over topics covered. Minimum acceptable grade is a "C".

V. FOREST COMMUNICATIONS

This course is designed to aid the forest technician with the written and spoken word in his/her daily work place. Pre-testing is provided to determine each individual's level of knowledge and as far as possible, individual instruction is provided to strengthen deficiencies. The preparation of memos, reports, and forms is stressed as part of the daily job. Basic keyboarding and beginning uses of the computer and word processing are introduced. Tests along with written and oral reports are used to determine the course grade. A "D" is the minimum acceptable grade.

VI. FOREST DRAFTING

This course is designed to prepare the student for later work in mapping and surveying. The principle objectives of the course are to give the student:

1. Knowledge in the use drawing/drafting equipment.
2. An ability to draw freehand to scale.
3. An ability to letter neatly freehand and with guides in various styles.
4. An ability to lay out and draw charts and graphs.
5. An ability to lay out, draw, and letter maps.
6. An ability to redraw maps and objects at various scales.
7. Introduction to the basics of CAD (Computer Assisted Drafting) is presented.

A minimum of lecture is used in this course. Most of the work and grade is derived from physical drawing and lettering of maps and objects. The basic elements of Computer Assisted Drafting (CAD) is presented. A minimum grade of "D" is acceptable in this course.

VII. FOREST OFFICE MACHINES

This course is designed to acquaint the forest technician to the business machines used in the work place. Adding machines, calculators, and computers make up the main equipment. The majority of the time is spent in a laboratory setting and the grade mostly comes from prepared program exercises. A "D" is the minimum passing grade in this course.

VIII. REFERENCE MATERIALS LIST

The lists of reference materials include the following:

- A list of references by secondary course title. , and
- A general reference list is provided as supplemental materials to those listed by course.
- A list of references needed for postsecondary.

Instructional Materials Service
Agriscience 101 References

Catalog Number	Title
4906	Teacher's Key - AgSc 101
CG101	Curriculum Guide for AgSc 101
2101	Transparencies for AgSc 101
8350	Supply and Demand of Food and Fiber
8351	Renewable and Nonrenewable Agricultural Resources
8352	The Impact of Agriculture on World Economy
8353	Interdependency of Agriculture and Society
8354	Key Developments Shaping World Agriculture
8355	Key Developments Shaping US Agriculture
8356	Factors Affecting World Trade
8357	The Impact of Agriculture as a Political Tool
8358	Environmental Concerns in Agriculture
8359	Methods of Protecting the Environment
8360	The Effects of the Environment on Agriculture
8361	World Food Chain - From Production to Consumption
8362	World Fiber Chain - From Production to Consumption
8363	Impact of Research and Development in Ag Science and Technology
8364	Research and Development Techniques for Class and Laboratory
8365	Developing Professionalism and Ethics
8366	Using Proper Etiquette and Behavior
8367	Exploring Personal Relations
8368	Practicing Good Grooming and Health Habits
8369	Understanding Importance of Effective Communication - Spoken Word
8370	Understanding Importance of Effective Communication - Written Word
8371	Improving Communication Skills Through Organized Activities
8372	Utilizing the Media for Effective Communication - Public Relations
8373	Importance and Procedures of Keeping Accurate Records
8374	Importance and Use of Budgeting
8375	Importance and Procedures of Personal Finance
8376	Types of Supervised Agricultural Experience
8377	Characteristics of Successful Agricultural Programs
8378	Planning Supervised Agricultural Experience Programs

Instructional Materials Service
Agriscience 102 References

Catalog Number	Title
4907	Teacher's Key - AgSc 102
CG102	Curriculum Guide for AgSc 102
2102	AgSc 102 Transparencies
K102	Teacher's Key to Topic Tests for AgSc 102
T102	Topic Tests for AgSc 102
8380	Importance and Formation of Soils
8381	Soil Formations
8382	Components and Properties of Soil
8383	Soil Classification Systems
8384	Plant Structure and Functions of Plant Parts
8385	Plant Growth and Development: Seed Germination
8386	Plant Growth and Development: Production, Use, Storage of Food
8387	Plant Genetics
8388	Sexual and Asexual Reproduction of Plants
8389	Plant Breeding
8390	Plant Recognition: Classification and ID of Field Crop Plants
8391	Animal Growth and Development
8392	Anatomy and Physiology of Animals
8393	Breeds of Beef Cattle
8394	Breeds of Swine
8395	Breeds of Sheep
8396	Breeds of Dairy Cattle
8397	Classes, Breeds, and Varieties of Poultry
8398	Breeds of Horses
8399	Selecting Beef Cattle
8400	Selecting Swine
8401	Selecting Sheep
8402	Selecting Dairy Cattle
8403	Selecting Poultry
8404	Selecting Horses
8405	Animal Reproduction
8406	Animal Genetics
8407	Methods of Animal Breeding
8408	Importance of Food Science Technology
8409	Trends in Food Production
8410	Identifying Major Areas of Agricultural Mechanics
8411	Identifying Safety and Laboratory Procedures
8412	Performing Basic Skills in Agricultural Construction
8413	Identifying Lumber and Computing Bill of Materials
8414	Identifying and Using Fasteners
8415	Agricultural Chemicals and the Environment
8416	Proper Use of Agricultural Chemicals
8417	Alternative Energy Sources
8418	Energy Conservation
8419	Water Conservation

Instructional Materials Service
Agriscience 231 References

Catalog Number	Title
4910	Teacher's Key - AgSc 231
CG231	Curriculum Guide for AgSc 231
K231	Teacher's Key - AgSc 231
T231	Topic Tests for Ag Sc 231
8380	Importance and Formation of Soils
8381	Soil Formations
8382	Components and Properties of Soil
8383	Soil Classification Systems
8633-A	Soil Sampling Methods
8634-A	Soil Erosion: Kinds, Factors, Control
8634-B	Fundamentals of Soil Use and Land Management
8635-A	Soil Water Importance - Loss/Drainage
8635-B	Water Requirements of Crops
8635-C	Soil Water Conservation Measures
8636-A	Primary Soil Nutrients
8636-B	Fertilizers: Utilization and Types
8636-C	Importance of Organic Matter
8636-D	Recognizing Nutrient Deficiencies
8636-E	Nutrients and pH of Soil
8637-A	Economic Importance and Uses of Major Agricultural Crops
8637-B	Major Agricultural Crop Production Areas
8390	Plant Recognition: Classification and ID of Field Crop Plants
8637-C	Identification of Major Agricultural Crops: Plant Morphology
8637-D	Identification of Major Agricultural Crops: Field Crops
8637-E	Identification of Major Agricultural Crops: Range Plants
8637-F	Identification of Major Agricultural Crops: Selection of Trees
8637-G	Identification of Major Agricultural Crops: Fruits and Vegetables
8637-H	Identification of Major Agricultural Crops: Nursery/Landscape
8384	Plant Structure and Functions of Plant Parts
8385	Plant Growth and Development: Seed Germination
8386	Plant Growth and Development: Production, Use, Storage of Food
8388	Sexual and Asexual Reproduction of Plants
8640-A	Nutrient Requirements of Plants
8640-B	Inorganic and Organic Fertilizers
8640-C	Methods/Rates/Times - Fertilizer Application
8641-A	Mechanical Techniques of Plant Management: Irrigation and Protection Practices for Cropland

Instructional Materials Service
Agriscience 231 References
Continued

Catalog Number	Title
8641-B	Mechanical Techniques of Plant Management: Harvest and Post-Harvest Practices for Crops
8641-C	Chemical Techniques of Plant Management
8642-A	Livestock, Dairy, and Poultry Production
8643	Evaluation and Selection of Dairy Goats
8644-A	Live Animal Evaluation and Grading
8644-B	Poultry Carcass Evaluation
8399	Selecting Beef Cattle
8400	Selecting Swine
8401	Selecting Sheep
8402	Selecting Dairy Cattle
8403	Selecting Poultry
8404	Selecting Horses
8332	Selection of Rabbits
8645-A	Safe Handling and Restraining of Animals
8645-B	Surgical Skills - Castration
8645-C	Surgical Skills - Dehorning
8645-D	Surgical Skills - Docking
8645-E	Performing Common Immunization Skills
8645-F	Methods of Identifying Livestock
8645-G	Livestock Transportation
8646-A	The Circulatory System
8646-B	The Respiratory System
8646-C	The Skeletal System
8646-D	The Muscular System
8646-E	The Digestive System
8405	Animal Reproduction
8646-F	The Exterior, Nervous, Urinary, and Endocrine Systems of Domestic Animals
8647-A	Feed Nutrients
8647-B	Classes of Feed
8647-C	Feed Additives

Instructional Materials Service
Agriscience 281 References

Catalog Number	Title
CG281	Curriculum Guide for AgSc 281
4913	Teacher's Key for AgSc 281
8685-A	Identifying the Various types of Natural Resources
8687	Population Demographics in Resource Management
8688	Land Use Management Conservation and Policy Trends
8689-C	Planning and Distribution of Texas Waters
8691-B	Types of Irrigation and Conservation Methods
8691-C	Water Conservation Agencies
8692-B	Waste Water and Solid Waste Reclamation Techniques
8693	Energy Resources
8694-A	Air Quality Standards and Agricultural Policies
8694-B	Sources, Effects, and Control of Air and Noise Pollution
8695-A	Sources and Types of Erosion
8695-B	Harmful Effects and Liability Concerning Erosion
8695-C	Governmental Programs and Methods of Erosion Control
8696-A	Hazardous Materials and Toxicity
8696-B	Handling, Storage, and Disposal of Hazardous Materials
8696-C	Governmental Hazardous Materials Programs

Other References:

0202	Household Hazardous Waste Wheel
8515	Sustainable Agriculture

Computer Programs:

9132	Apple II Plus - Calculating Soil Loss
9133	IBM-PC - Calculating Soil Loss
9134	TRS-80 Model III - Calculating Soil Loss
9140	Apple II Plus - Manure Management
9141	IBM-PC - Manure Management
9142	TRS-80 Model III - Manure Management

Instructional Materials Service
Agriscience 311 References

Catalog Number	Title
4773	Farm and Ranch Business Management
CG311	Curriculum Guide for AgSc 311
4914	Teacher's Key for AgSc 311
8706-A	Importance of Agriculture
8706-B	Management Roles & Functions
8706-C	Management Decision-Making
8706-D	Goals and Objectives
8707-A	Economic Systems
8707-B	Supply & Demand
8707-C	Production Economics: Maximizing Profits
8708-A	Income & Cost of Production
8708-B	Enterprise Budgets
8708-C	Total Budgeting
8708-D	Partial Budgeting
8709-A	Management Information Systems
8709-B	Accounting
8709-C	Balance Sheet
8709-D	Income Statement
8709-E	Cash Flow Statement
8709-F	Financial Statement Analysis
8709-G	Income Taxes and Social Security
8709-H	Production Records
8709-I	Depreciation
8710-A	Obtaining Capital Resources
8710-B	Importance & Types of Credit
8710-C	Agricultural Loan Institutions
8710-D	Computing Interest
8710-E	Types of Loans
8711-A	Business Legal Structures
8711-B	Agricultural Laws and Regulations
8711-C	Legal Documents
8712-A	Risk Management
8712-B	Types of Insurance
8713-A	Past Agricultural Policy
8713-B	Recent & Current Agricultural Policies
8714-A	Purpose and Importance of Marketing
8714-B	The Competitive Environment
8714-C	Domestic and International Marketing Factors
8714-D	Types of Agricultural Markets
8714-E	Marketing Alternatives for Production Agriculture
8714-F	Forward Contracting: Cash and Futures
8714-G	Effects of Government Programs
8715-A	Use & Selection of Computers - Agribusiness
8716-A	Employee Benefits
8716-B	Employer/Employee Relationships
8721-A	Management Roles and Functions
8721-B	Management Goals and Decision Making
8721-C	Managing Risk and Uncertainty
8722-A	Economic Systems, Money Price, and Government Policy
8722-B	Economics: Supply and Demand

Instructional Materials Service
Agriscience 312 References

Catalog Number	Title
CG312	Curriculum for AgSc 312
4915	Teacher's Key for AgSc 312
8736-A	Self Concept
8736-B	Social Skills
8736-C	Professional Image
8737-A	Leaders and Leadership
8737-B	Leadership Styles
8738-A	Personal Leadership Potential
8738-B	Basic Human Needs
8738-C	Motivation and Influence
8738-D	Preparing Resumes and Applications
8739-A	Job Interviews
8739-B	Employer Expectations
8739-C	Work Related Ethics
8739-D	Working with Co-Workers
8740-A	Job Applicants
8740-B	Evaluation of Employees
8740-C	Complaints and Appeals
8740-D	Employee Obligations
8740-E	Business Related Ethics
8741-A	The Communication Process
8741-B	Barriers to Communication
8741-C	Written Communication
8741-D	Verbal Communication
8741-E	Non Verbal Communication
8741-F	Listening
8741-G	Working with Diverse Groups
8741-H	Group Discussions
8741-I	Successful Meetings
8741-J	Friends and Friendship
8742-A	Organizing Groups
8742-B	Program of Activities
8742-C	Decision Making
8742-D	Problem Solving
8742-E	Personal Goals
8742-F	Time Management

Instructional Materials Service
Agriscience 323 References

Catalog Number	Title
CG323	Curriculum Guide for AgSc 323
4919	Teacher's Key for AgSc 323
8790	Understanding and Applying Safe Work Practices
8791-A	Identifying, Selecting, Maintaining, and Operating Tools and Equipment
8791-B	Planning & Maintaining Agricultural Power Service Centers
8792-A	Identifying and Selecting Machines and Equipment
8792-B	Identifying and Maintaining Component Materials
8792-C	Identifying, Selecting, and Using Fasteners
8792-D	Identifying and Servicing Monitoring, Sensing, and Metering Devices
8792-E	Adjusting, Calibrating, Maintaining and Operating Equipment
8793-A	Understanding Principles of 2-Cycle and 4-Cycle Internal Combustion Engines
8793-B	Maintaining & Trouble Shooting Small Air-Cooled Engines
8793-C	Disassembling and Reassembling Small Air-Cooled Engines
8794-A	Selecting and Operating Tractors
8794-B	Maintaining Air Intake and Exhaust Systems
8794-C	Selecting Lubricants and Maintaining Lubrication Systems
8794-D	Fuel System Maintenance; Fuel Selection, Storage & Handling
8794-E	Maintaining DC Electrical Systems
8794-F	Maintaining Power Trains
8794-G	Maintaining Hydraulic Systems
8794-H	Maintaining Steering and Braking Systems
8794-I	Maintaining the Air Conditioning System
8795	Selecting, Maintaining, and Operating Electric Motors
8796	Selection, Operating, & Maintaining Hydraulic Motors & Pumps

Instructional Materials Service
Agriscience 333 References

Catalog Number	Title
CG333	Curriculum for AgSc 333
4922	Teacher's Key for AgSc 333
8848-A	Soil and Plants: Importance and Interrelationship
8380	Importance and Formation of Soils
8381	Soil Formations
8511	Elements of Weather
8382	Components and Properties of Soil
8383	Soil Classification Systems
8850-A	Land Use Classification
8850-B	Land Judging
8851-A	Reading, Interpreting, and Using Soil Maps
8851-B	Soil Surveys
8851-C	Capability Maps and Numbering Systems
8851-D	Soil Engineering Properties and Their Effect on Land Use
8852-A	Soil Conservation Service and Soil and Water Conservation Districts
8852-B	Agricultural Stabilization and Conservation Service
8852-C	Watershed Districts and Other Soil and Water Regulating Agencies
8633-A	Soil Sampling Methods
8853-A	Commercial Soil Testing Procedures
8853-B	Soil Test Analysis: Interpretation and Use
8636-B	Fertilizers: Utilization and Types
8640-B	Inorganic and Organic Fertilizers
8640-C	Methods/Rates/Times - Fertilizer Application
8634-A	Soil Erosion: Kinds, Factors, Control
8855-A	Urban and Rural Land Use Programs
8856-A	Land Evaluation: Assessing Soil Characteristics
8856-B	Land Evaluation: Applying Land Use Principles
8856-C	Land Evaluation: Rural and Urban Land Appraisal Methods
8637-A	Economic Importance and Uses of Major Agricultural Crops
8857-A	Importance of Plants in the Food Chain
8384	Plant Structure and Functions of Plant Parts
8858-A	Photosynthesis
8388	Sexual and Asexual Reproduction of Plants
8858-B	Plant Hybridization and Preservation of Pure Lines
8859-A	Selection of Seed Cultivars and Planting Practices
8512	Saving Our Heirlooms - Seeds
8860-A	Tillage Practices: Conventional, Minimum and No-Till

Instructional Materials Service
Agriscience 333 References
continued

Catalog Number	Title
8860-B	Safe Application of Chemicals on Plants
8860-C	Pest Control in Crops
8861-A	Alternative Crops for Agricultural Land (Texas)
8510	Aloe Vera: The Wonder Plant
8513	Edible Flowers
8861-B	Urbanization of Food Plant Production
8861-C	Turfgrass Care for Lawns
8861-D	Research in Plant and Soil Sciences
8514	Conducting Research

Instructional Materials Service
Agriscience 381 References

Catalog Number	Title
CG381	Curriculum Guide for AgSc 381
4928	Teacher's Key for AgSc 381
K381	Teacher's Key - AgSc 381 Topic Tests
T381	Topic Tests for AgSc 381
8981-A	Benefits of Wildlife
8982-A	History of Wildlife Management
8983-A	State and Federal Agencies in Wildlife Conservation
8983-B	Federal Wildlife Laws
8983-C	Texas Wildlife Laws
8983-D	Hunting Leases
8983-E	Policies Affecting Wildlife
8984-A	The Ecosystem
8985-A	Game and Fur Bearer Animal Species Identification
8985-B	Predator, Pests, and Nuisance Species Identification
8985-C	Identification of Freshwater Fish Species
8985-D	Saltwater Fish Species Identification
8985-E	Waterfowl Identification
8985-F	Land Bird Identification
8985-G	Exotic Wildlife Species Identification
8985-H	Reptile Species Identification
8986-A	Wildlife Habitat Requirements
8986-B	General Concerns in Wildlife Population Management
8986-C	General Management Practices for Selected Wildlife Populations: Deer, Turkey, Quail, and Freshwater Fish
8987-A	Endangered Species Identification
8987-B	Using Genetics to Improve Wildlife
8987-C	Commercial Game and Fish Enterprises
8987-D	Handling Misplaced Wildlife
8988-A	Identifying Recreational Enterprises
8988-B	Developing Recreational Enterprises
8988-C	Management of Recreational Enterprises
8988-D	State and Federal Policies Concerning Outdoor Recreation
8989-A	Careers in Wildlife Management
8989-B	Careers in Recreation Management

Instructional Materials Service
Agriscience 381 References
continued

Other References:

0269	The Mammals of Texas Handbook
0271	Quail Management Handbook
0272	Ducks at a Distance
0273	Gray Squirrel in Texas
0274	Shrimp Fishery in Texas
0275	Salt Water Fishes in Texas
0278	Poisonous Snakes in Texas
0281	Freshwater Fishes in Texas
0282	The Texas Oyster Fishery
0283	Inland Aquaculture Handbook
0284	Field Guide to Reptiles and Amphibians of Texas
0285	Field Guide to Snakes of Texas
0286	Field Guide to Wildlife of Texas

Color Slides:

5701	Game and Fur-Bearer Animal Species Identification
5703	Fish Species Identification
5704	Water Fowl Identification
5705	Land Bird Identification
5707	Reptile and Amphibian Species Identification

Computer Software:

9164	Apple - Hunter Education
9165	Apple - Stalking the Whitetail Deer
9184	Apple IIE/C - Hunting Wild Gobbler

VHS Videos:

9621	Hunter Education: The Only Way to Go
9622	Firearm Safety Begins in the Home
9623	The Responsible Hunter
9624	Tree Stands: Above All, Safety First
9626	Smallmouth Bass
9628	Surface Lures and Buzz Baits
9630	Bass Fishing: Top to Bottom
9631	Understanding Bass
9632	Way of the Whitetail
9633	Successful Whitetail Deer Hunting
9634	Bowhunting for Whitetail Deer
9635	Successful Mule Deer Hunting
9636	Duck and Goose Hunting
9637	Introduction to Duck Calling

Instructional Materials Service
Agriscience 381 References
continued

VHS Videos:

9639	Audubon Society's Video Guide to Birds of North America
9640	Understanding the Wild Turkey
9641	Training Your Retriever - Basic
9642	Fly Fishing for Trout
9643	The Way of a Trout
9644	Basic Fly Casting
9649	Deer Processing
9650	Whitetails - Producing Trophies
9668	A Year With the Whitetail
9669	So You Want to be a Hunter
9680	Red Drum Aquaculture
9681	Catfish Farming
9682	Aquaculture: Farming the Waters
9725	The Two Minute Coyote
9741	Learning to Tie Knots
9742	Crawfish Aquaculture
9743	Alligator Aquaculture

Instructional Materials Service
Agriscience Forestry References

Catalog Number	Title
0049	Forestry Employee
0264	Forest Trees of Texas Handbook
0287	Field Guide of Trees of Texas
9015	Forestry Products Harvesting Inventory Form
9036	PELT Forestry (Competency Profile)

VHS Videos:

9651	Trees for People
9654	Fundamentals of Forestry
9655	Tree Identification
9656	Practice Tree Identification
9733	Lumber Production Fieldtrip

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Forestry Suppliers,Inc.
205 W. Rankin Street
P.O. Box 8397
Jackson, Mississippi 39284-8397

Books and References:

59945	Pocket Reference
59746	Log Scaling and Timber Cruising
71275	Forester's Log Scale Book
39558	Elementary Forest Surveying and Mapping
39559	Elementary Forest Surveying and Mapping II
59335	Tables for Estimating Board-Foot Volume of Timber
39555	Calder's Forest Road Engineering Tables
59892	Essentials of Forestry Investment Analysis
59838	Forest Ecology
59831	An Introduction to Forestry
59874	Introduction to Forest Science
59839	The Practice of Silviculture
59872	Regional Silviculture of the United States
59826	Principles of Silviculture
59779	How to Make Money Growing Trees
59889	Forest Fire Behavior and Effects
59890	Forest Fire Management and Organization
59790	Introduction to Wildland Fire
59873	Fire Ecology: United States and Southern Canada
59800	Forestry Handbook
59866	Forest Measurements
59858	Urban Forestry

Forestry Suppliers,Inc.
205 W. Rankin Street
P.O. Box 8397
Jackson, Mississippi 39284-8397
continued

Books and References:

59786	Decision-Making in Forest Management
59880	Forest Products in Terms of Metric Units
59877	Timber Management: A Quantitative Approach
59830	Forestry and Its Career Opportunities
59947	Handbook of Weed and Insect Chemicals
94736	Christmas Trees for Pleasure and Profit
59799	A Guide to Southern Trees
59446	The Illustrated Book of Trees
59917	Essentials of Forestry Practice
59787	Applied Forest Tree Improvement
59888	Working with Your Woodland
59944	Farming the Small Forest: A Guide for the Landowner
59916	Forest Vegetation Management for Conifer Production
59788	Introduction to Forest Resource Management
59785	Forest Entomology
59903	Logging and Pulpwood Production
59829	Textbook of Dendrology
59833	Forest and Range Policy
59865	Elk of North America: Ecology and Management
35845	Field Manual of Wildlife Diseases in the Southeastern United States
59856	Wildlife Biology
59898	White-Tailed Deer Ecology and Management
59867	Diseases and Parasites of White-Tailed Deer
59819	Evidence and Procedures for Boundary Location
37488	Compass Land Surveying
59818	Boundary Control and Legal Principles
51072	Interpretation of Aerial Photographs
51089	Reading Maps
51095	Book of Aerial Stereo Photographs
51088	Aerial Stereo Studies
94730	Tree Sort Guide: 860 Trees
51000	Landforms in Three Dimensions
51001	Landforms in Three Dimensions Set II

Computer Software:

34191	Crustali for IBM and compatibles
34147	Omnitali for IBM and compatibles

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NASCO
901 Janesville Avenue
Fort Atkinson, Wisconsin 53538-0901

Books:

C9734N	The Tree Identification Book
C13423N	Tree Care

Slides and Filmstrips:

C10135N	The Forest
C10170N	Trees of America
C10204N	Insects of Horticultural and Forest Tree Crops

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AAVIM
120 Driftmier Engineering Center
Athens, Georgia 30602

Computer Software:

AC595	Urban Forestry Package (Apple)
AC596	Urban Forestry Package (IBM)
HB368	Managing Our Natural Resources Review (Apple - 5 1/4)
HB369	Managing Our Natural Resources Review (Apple - 3 1/2)
HB370	Managing Our Natural Resources Review (IBM - 5 1/4)
HB371	Managing Our Natural Resources Review (IBM - 3 1/2)
HB372B	Managing Our Natural Resources Review (Macintosh - 3 1/2)
HB170	Forestry and Related Review (Apple - 5 1/4)
HB270	Forestry and Related Review (Apple - 3 1/2)
HB172	Forestry and Related Review (IBM - 5 1/4)
HB272	Forestry and Related Review (IBM - 3 1/2)
HB872	Forestry and Related Review (Macintosh - 3 1/2)
PC253	Timber Cruising (Apple)
PC254	Timber Cruising (IBM)

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Curriculum and Instructional Materials Center
1500 West Seventh Avenue
Stillwater Oklahoma, 74074-4364

AG1036	Forestry (Teacher)
AG3036	Forestry (Student)

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Interstate Publishers, Inc.
P.O. Box 50
Danville, Illinois 61834-0050

2854-8	Forests and Forestry Text
2855-6	Forests and Forestry Teacher's Manual
2775-4	Timber Harvesting
2776-2	Chain Saw Manual

* * *

Ag Access Books
P.O. Box 2008
Davis, California 95617

Text

PRN054	Urban Forestry: Planning and Managing Urban Greenspaces

* * *

Hobar
1234 Tiller Lane
St. Paul, Minnesota 55112
(612) 633 - 3170

Text

1647-2	Elementary Forestry
8800	Forest Management Digest
3001M	Tree Identification
3002G	Teaching Tree Identification

Slides

3003S	Tree Identification
406	Forest Harvesting Equipment
407	Forest Harvesting Skidding Techniques

Panola College Forest Technician Program
References

Title	**Author**	**Publisher**
Introduction to Forest Science	Young & Giese	John Wiley
Eastern Forests	Kricher & Morrison	Houghton Mifflin
Eastern Trees	Petrides	Houghton Mifflin
Insects	Borror & White	Houghton Mifflin
Elementary Forest Surveying & Mapping	Wilson	Oregon State Univ.
Elementary Forest Surveying & Mapping II	Wilson	Oregon State Univ.
Reading Maps	Riffel	Hubbard
Be an Expert with Map & Compass	Kjellstrom	Scribners
How to Make Money Growing Trees	Vardaman	John Wiley
Texas Trees	Simpson	Texas Monthly Press
Weather	Lehr, Burnett, & Zim	Golden Press
Forest Farmer Manual	Forest Farmer Assn	Forest Farmer Assn
Applied Math	Bajpai, Bord, & Jones	John Wiley
Field Surveying Field Book	Forestry Suppliers	Forestry Suppliers
Tree Finder	Mary Thielgaard Watts	Nature Study Guild
Winter Tree Finder		Nature Study Guild
Behavioral Insights for Supervision	Ralph W. Reber & Gloria Van Guilder	Prentice-Hall
Wildlife Management on Your Land	Charles L. Cadieux	Stackpole

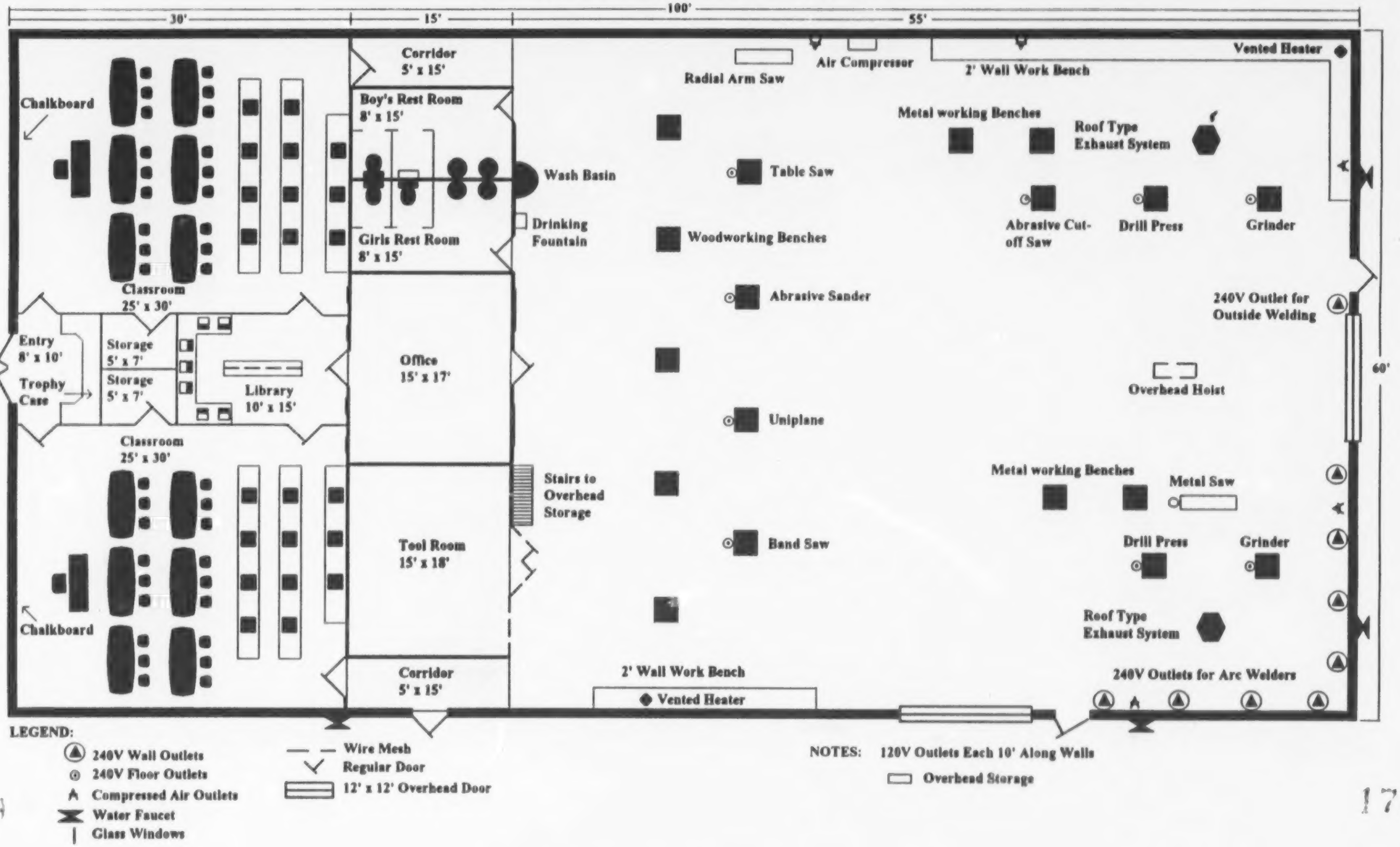
Wordbooks - Produced Locally

Forest Technician Program Handbook
Introduction to Forestry Handbook
Silviculture I Handbook
Dendrology Handbook
Forest Protection Handbook
Silviculture II Handbook
Forest Surveying and Mapping Handbook
Forest Measurements Handbook
Forest Business Methods Handbook

IX. LINE DRAWING OF RECOMMENDED FACILITY

The following is a line drawing of the recommended classroom and shop facilities for the 2+2 program in Forest Technology.

AGRISCIENCE CLASSROOM BUILDING AND SHOP FACILITIES


30'
15'
100'
55'
60'
Corridor 5' x 15'
Boy's Rest Room 8' x 15'
Girls Rest Room 8' x 15'
Chalkboard
Classroom 25' x 30'
Entry 8' x 10'
Trophy Case
Storage 5' x 7'
Storage 5' x 7'
Library 10' x 15'
Office 15' x 17'
Classroom 25' x 30'
Tool Room 15' x 18'
Chalkboard
Corridor 5' x 15'
Wash Basin
Drinking Fountain
Stairs to Overhead Storage
Radial Arm Saw
Air Compressor
2' Wall Work Bench
Vented Heater
Table Saw
Woodworking Benches
Abrasive Sander
Uniplane
Band Saw
2' Wall Work Bench
Vented Heater
Metal working Benches
Roof Type Exhaust System
Abrasive Cut-off Saw
Drill Press
Grinder
240V Outlet for Outside Welding
Overhead Hoist
Metal working Benches
Metal Saw
Drill Press
Grinder
Roof Type Exhaust System
240V Outlets for Arc Welders
LEGEND:
240V Wall Outlets
240V Floor Outlets
Compressed Air Outlets
Water Faucet
Glass Windows
Wire Mesh
Regular Door
12' x 12' Overhead Door
NOTES: 120V Outlets Each 10' Along Walls
Overhead Storage

BEST COPY AVAILABLE

X. LIST OF RECOMMENDED TOOLS AND EQUIPMENT

The following is a list of tools and equipment to be used in the teaching of the skills necessary for a student to succeed in the agricultural 2+2 program.

The estimated prices used to determine costs were obtained from tool and equipment supply catalogs and local hardware and lumber companies.

Tools and Equipment

The following hand tool and equipment list specifies the recommended quantities of each tool needed to teach a class of twenty students, and this is the number that a school should purchase when initiating a 2+2 Agricultural Technologies Program for a Forest Technician.

ITEM	RECOMMENDED QUANTITY	COST PER UNIT	TOTAL COST
Compass	20	$32.95	$659.00
Bark Gauge	1	54.95	54.95
Loggers Tape - 75'	5	69.00	345.00
Snake Leggings	1	54.75	54.75
Wheeler Pentaprism	1	445.00	445.00
Come-Along	1	109.00	109.00
Digital Planimeter	1	730.00	730.00
Chain Saw	2	499.00	998.00
Hand Held Calculators	20	10.00	200.00
Brush Chaps	1	34.50	34.50
Dibble	5	69.00	345.00
Sling Psychometer	1	49.95	49.95
Hygrometer Wand	1	279.00	279.00
Anemometer	1	109.95	109.95
Calipers	2	107.75	215.50
Clinometer	2	197.00	394.00
Hard hat	20	6.70	134.00
Prism	10	23.00	230.00
Paint Gun	1	133.00	133.00

ITEM	RECOMMENDED QUANTITY	COST PER UNIT	TOTAL COST
Biltmore stick	20	$32.25	$645.00
Protractor	20	4.50	90.00
Fire Extinguisher	1	69.00	69.00
Pocket knife	20	17.50	350.00
Chains - 20'	2	60.00	120.00
Diameter Tape	5	60.00	300.00
Increment Borer	2	143.00	286.00
Safety Glasses	20	6.25	125.00
Polycorder	1	3,830.00	3,830.00
Staff Compass	1	380.00	380.00
Stereoscope	1	495.00	495.00
Drip Torch	1	137.50	137.50
Engineer's Scale	20	12.75	255.00
First Aid Kit	1	39.95	39.95
Fire Rake	5	21.95	109.75
Boomers	2	57.75	115.50
Axes	3	37.50	112.50
Water cooler - 10 gal.	1	49.95	49.95
Tree injector	1	199.00	199.00
Machetes with leather sheath	2	32.00	64.00
Abney level	1	140.00	140.00
Engineer's Tape- 100'	1	101.50	101.50

SUPPLIES AND EQUIPMENT THAT MAY BE NEEDED FOR TEACHING THE 2+2 AGRISCIENCE TECHNOLOGY PROGRAM FOR A FOREST TECHNICIAN

In addition to the tools and equipment previously listed, the supplies and equipment listed below are necessary to develop skills and competencies needed by students.

2-3	Gallon pressure sprayers
6	Pair rubber gloves
1	Set of insect and parasite mounts
1	Dissecting set
20	Rolls of flagging in assorted colors
20	Tally Pads
20	Aerial Photographs
1	Soil Auger, 2" Bit, 40" Shank
1	Soil Testing Kit Including: Nitrogen Tester, Phosphate Tester, Potash Tester, pH Tester, Test Tubes, Reagents, and Filters
1	Plant Tissue Testing Kit
1-5	Bostrum No. 2 Farm Level with Tripods and Targets
1	Farm Level, Target, and Rod
1	Chain Tape, 100'
4	Insect Killing Jars
1	Soil Thermometer
1	Set of wood samples

Visual Aids Equipment:

16 mm movie projector
35 mm film strip - slide projector
Nonreflective screen for overhead projector
Reflective screen for movie projector
35 mm camera
Video tape equipment - recording and playing
Computers (8)
Overhead projector
Video camcorder
Forestry Software

A Forester working in the field would need the following tools or equipment:

Pick-up Truck
Light Dozer (Furnished by company)
Winch for Pick-up
Two-way Radio

XI. COMPETENCY PROFILE

The following competency profile will be marked at the secondary level for those competencies achieved by the student during grades 11 and 12.

The profile will then be sent to the postsecondary institution where it will be updated as the student progresses.

Upon graduation from the postsecondary institution, a copy of the profile will have the college seal affixed, and will be provided to the student for presentation to a proposed employer.

COMPETENCY PROFILE

Secondary School ______________________ Postsecondary School ______________

Agriculture 2+2 Program Area - Forest Technician Career Goal ______________

Name ______________________ Social Security Number ____________ Age ______

Address ______________________________________ Date of Birth __________

Phone Number ________________ Sex _____ Racial/Ethnic Designation __________

Parent's Name ______________________________ Phone Number __________

Secondary Agriculture Courses Completed

Name of Course	Date Completed		
	Month	Day	Year
AGSC 101 Introduction to World Agricultural Science and Technology			
AGSC 102 Applied Agricultural Science and Technology			
AGSC 231 Animal and Plant Production			
AGSC 281 Energy and Environmental Technology			
AGSC 311 Agribusiness Management and Marketing			
AGSC 312 Personal Skill Development in Agriculture			
AGSC 323 Agricultural Power Technology			
AGSC 333 Plant and Soil Science			
AGSC 365 Forestry and Wood Technology			
AGSC 381 Wildlife and Recreation Management			
AGSC 491 Forestry Pre-Employment Laboratory			
AGSC 491 Agricultural Resources Pre-Employment Laboratory			

Postsecondary Agriculture Courses Completed

Name Of Course	Date Completed		
	Month	Day	Year
Introduction to Forestry			
Dendrology			
Forest Protection			
Forest Drawing			
Forest Math			
Forest Communications			
Forest Business Machines			
Forest Surveying			
Forest Mapping			
Forest Measurements			
Silviculture I			
Silviculture II			
Forest Harvesting			
Forest Business Methods			
Forest Products			
Forest Personnel Management/Safety			
Wildlife Ecology			

COMMENTS:

____

Directions: Evaluate the student using the rating scale below. Check the appropriate number to indicate the degree of competency. The rating for each of the tasks should reflect job readiness.

Rating Scale:
4 Skilled - can work independently with no supervision
3 Moderately Skilled - can perform job completely with limited supervision
2 Limited Skill - requires instruction and close supervision
1 No Exposure - no experience or knowledge in this area

A. CRUISE TIMBER

4	3	2	1	
☐	☐	☐	☐	1. Verify Property Lines and Ownership
☐	☐	☐	☐	2. Review Aerial Photograph
☐	☐	☐	☐	3. Draw a Field Map
☐	☐	☐	☐	4. Estimate and Record Volume
☐	☐	☐	☐	5. Determine Stand Composition and Prescription
☐	☐	☐	☐	6. Prepare Cruise Report

B. TIMBER SALES SECURITY

4	3	2	1	
☐	☐	☐	☐	1. Review Contracts
☐	☐	☐	☐	2. Conduct Pre-logging Conference
☐	☐	☐	☐	3. Inspect Job Site
☐	☐	☐	☐	4. Conduct Post Inspection of Job Site

C. TIMBER ACQUISITION

4	3	2	1	
☐	☐	☐	☐	1. Contact Land Owner
☐	☐	☐	☐	2. Negotiate the Contract
☐	☐	☐	☐	3. Execute the Contract

D. TIMBER MARKING

4	3	2	1	
☐	☐	☐	☐	1. Determine the Production Objective
☐	☐	☐	☐	2. Mark the Timber According to the Plan
☐	☐	☐	☐	3. Prepare the Tally Sheet

E. HERBACEOUS CONTROL

4	3	2	1	
				1. Determine the Control Objective
				2. Determine the Method of Control
				3. Use Mechanical Control
				4. Use Chemical Control
				5. Perform Post-Job Inspection

F. INSECT AND DISEASE CONTROL

4	3	2	1	
				1. Detect Insect or Disease
				2. Verify and Assess Infestation
				3. Determine and Implement Control
				4. Monitor the Control Measures

G. SUPERVISION OF EMPLOYEES AND CONTRACTORS

4	3	2	1	
				1. Schedule Employees Work
				2. Assign Employees Work
				3. Train Employees
				4. Supervise Employee Activities
				5. Negotiate Contract with Contractors
				6. Monitor Contractor's Work
				7. Perform Post Inspection of Contractor's Work

H. JOB IMPROVEMENT

4	3	2	1	
				1. Evaluate Existing Jobs
				2. Develop Ideas for Job Improvement
				3. Provide Continuing Education
				4. Emphasize Safe Practices

I. ENVIRONMENTAL IMPACT MANAGEMENT

4	3	2	1	
				1. Carry Out Wildlife Management Plan
				2. Comply With Best Management Practices
				3. Maintain Environmental Records

J. PUBLIC RELATIONS

4	3	2	1	
				1. Communicate Positive Image
				2. Accomplish Quick, Positive Solution to Problems
				3. Provide Public Information

K. CONTROLLED BURNING

4	3	2	1	
				1. Develop a Burning Plan
				2. Establish Fire Lines
				3. Organize the Burn
				4. Execute Site Preparation Burn
				5. Execute Prescribed Burn
				6. Perform Post Burn Inspection

L. SITE PREPARATION

4	3	2	1	
				1. Determine Planting Method
				2. Apply Mechanical Method of Site Preparation
				3. Apply Chemical Method of Site Preparation
				4. Inspect Final Site Preparation

M. REGENERATION

4	3	2	1	
				1. Distribute Seedlings
				2. Monitor the Contractors Work
				3. Perform Final Inspection
				4. Perform One Year Survival Check

N. RECORD MANAGEMENT

4	3	2	1	
				1. Use Polycorder
				2. Use Personal Computer for Word Processing
				3. Use Personal Computer for Data Base Management
				4. Use Personal Computer with Spreadsheets
				5. Maintain All Company Records
				6. Maintain Client Records
				7. Maintain Daily Log
				8. Use Calculator

O. OPERATE AND MAINTAIN EQUIPMENT

4	3	2	1	
				1. Operate and Maintain Light Dozer
				2. Operate and Maintain Transport Truck (Roll Back)
				3. Operate and Maintain Chain Saw
				4. Operate and Maintain Marking Equipment
				5. Operate and Maintain Company Vehicles
				6. Operate and Maintain All Terrain Vehicle

XII. STUDENT MONITORING AND FOLLOW-UP

The following student monitoring and follow-up instrument is the one that will be used to monitor and follow the student one year after graduation from the postsecondary institution.

The 2+2 User's Group is considering adopting an instrument to be used for all 2+2 programs. At the time of this publication, the instrument has not been adopted.

Northeast Texas Community College
Project LONESTAR
Statistical Information Request

What is your **primary** reason for attending Northeast Texas Community College? (please check one)

☐ 1. Get a Job
☐ 2. Improve Skills Needed in Current Job
☐ 3. Get a Better Job
☐ 4. Maintain Licensure
☐ 5. Earn a Certificate
☐ 6. Earn a Two-Year Degree
☐ 7. Earn Credit to Apply to a Four-Year Degree
☐ 8. Personal Enrichment
☐ 9. Other

How long do you plan on being at Northeast Texas Community College? (please check one)

☐ 1. One Semester Only
☐ 2. Two Semesters
☐ 3. One Year
☐ 4. Two Years
☐ 5. Three Years
☐ 6. More Than Three Years

What is your current employment status? (please check one)

☐ 1. Employed Full-time (40 hours or more per week)
☐ 2. Employed Part-time (Less than 40 hours per week)
☐ 3. Employed as a Homemaker
☐ 4. Not Employed, Seeking Work
☐ 5. Not Employed, Not Seeking Work

What is your **previous** college-level academic experience? (please check one)

☐ 1. None
☐ 2. Some Postsecondary Education
☐ 3. Postsecondary Award, Certificate, or Diploma
☐ 4. Associates' Degree
☐ 5. Bachelor's Degree
☐ 6. Master's Degree
☐ 7. Doctoral Degree
☐ 8. First-professional Degree

If you consider yourself to be in any of the following categories, please check one.

☐ 1. Handicapped
☐ 2. Limited English Proficiency
☐ 3. Single Parent/Homemaker
☐ 4. Learning Disability
☐ 5. Culturally Disadvantaged
☐ 6. Academically Disadvantaged
☐ 7. Economically Disadvantaged
☐ 8. Physical Disability
    ☐ Deaf
    ☐ Deaf-Blind
    ☐ Hard of Hearing
    ☐ Orthopedically Impaired
    ☐ Other Health Impaired
    ☐ Speech Impaired
    ☐ Visually Handicapped

How did you receive your schedule of classes? (please check one)

☐ 1. Called NTCC and it was mailed to you.
☐ 2. Came by NTCC and picked it up.
☐ 3. Newspaper insert.
☐ 4. Other_______________________________.

Describe the highest level of formal education obtained by your father.
(please check one)

☐ 1. Not a high school graduate
☐ 2. High school graduate
☐ 3. Some college or associate's degree
☐ 4. Bachelor's degree or above

Describe the highest level of formal education obtained by your mother
(please check one)

☐ 1. Not a high school graduate
☐ 2. High school graduate
☐ 3. Some college or associate's degree
☐ 4. Bachelor's degree or above

TX8-1-F (NRS-DeVAULT) Term:

Tex-SIS FOLLOW-UP

PROJECT FOLLOW-UP

-44

Please make corrections to the information above if necessary.

FOR COLLEGE USE ONLY

Term Date

Mo ☐ ☐ Yr ☐ ☐
16 17 20 21

Completion Code ___ 71

Group Code
33- A ☐ O/T
B ☐ LT
C ☐ OTH
D ☐ VC

Course Type Code
74- 1 ☐ Coop
2 ☐ Non-Coop

Major Code
34 35 36 37 38 39

Target Pop. Code
1 ☐ REG
2 ☐ DAVT
3 ☐ HNCP
4 ☐ LEP
5 ☐ SP/HOME
6 ☐ SB/STER

Special Code ☐ 63

Level Code
76- 2 ☐ Postsecondary
3 ☐ Adult-LT
4 ☐ Adult-ST
5 ☐ OTH

Note: This survey is authorized by Public Laws 20 USC 2312 and 20 USC 2391. While you are not required to respond to this survey, your cooperation is needed to insure that the results of this effort are comprehensive, reliable, and timely.

PLEASE CHECK APPROPRIATE BLOCK(S) WITHIN EACH CATEGORY BELOW.

SECTION A

EVERYONE SHOULD ANSWER THIS SECTION

Do not write in this column

Please respond to the below as appropriate. This information is needed for equal opportunity education and employment reporting.

MAJOR ______________________________
(At our college)

SEX
44- M ☐ Male
F ☐ Female

ETHNIC GROUP
66- 1 ☐ American Indian or Alaskan Native
2 ☐ Asian or Pacific Islander
3 ☐ Black, not of Hispanic Origin
4 ☐ Hispanic
5 ☐ White, not of Hispanic Origin

AGE
67- B ☐ 18-19
C ☐ 20-24
D ☐ 25-29
E ☐ 30-34
F ☐ 35-44
G ☐ 45-54
H ☐ 55-64
I ☐ 65 and over

1 What was your PRIMARY objective in attending our two-year college?

46-1 ☐ Improvement of existing "job skills"
47-1 ☐ Preparation for "job to be obtained"
48-1 ☐ University transfer credit
49-1 ☐ Personal interest
50-1 ☐ Other (describe) ______________________

2 To what extent has this objective been completed?

51- 1 ☐ Fully completed
2 ☐ Partially completed
3 ☐ Not completed

3 Do you plan to pursue this objective further?

52- 1 ☐ Yes: where? ➡
2 ☐ No

53-1 ☐ At our college
54-1 ☐ At another college
55-1 ☐ Other (describe) ______________________

4 How much education is (or was) required to accomplish your educational objective at our college?

56-1 ☐ Selected course(s)
57-1 ☐ Certificate program
58-1 ☐ Two-year associate degree program
59-1 ☐ Other (describe) ______________________

5 What was your principal reason for NOT re-enrolling at our college this semester?

60-1 ☐ Completed needed courses
61-1 ☐ Transportation problems
62-1 ☐ Transferred to another college
63-1 ☐ Found job in occupation related to course(s) completed at this college
64-1 ☐ Conflicting job hours
65-1 ☐ Financial reasons
66-1 ☐ Change of residence
67-1 ☐ Grade problems
68-1 ☐ Dissatisfied with instruction
69-1 ☐ Dissatisfied with content of courses
70-1 ☐ Personal family illness or injury
71-1 ☐ Other personal family reasons
72-1 ☐ Other (describe) ______________________

6 Which statement best describes your feeling about your educational experience at our college?

Do not write in this column.

73- 1 ☐ Very satisfied
2 ☐ Satisfied
3 ☐ Average
4 ☐ Disappointed
5 ☐ Very disappointed

7 If you have completed courses in your MAJOR FIELD OF STUDY please rate them according to how well they fulfilled your individual needs. Students with "undecided/undeclared" majors should skip to next question.

		Very Good 1	Good 2	Average 3	Poor 4	Very Poor 5
a. Quality of instruction	74-	☐	☐	☐	☐	☐
b. Grading, Testing	75-	☐	☐	☐	☐	☐
c. Instructor interest	76-	☐	☐	☐	☐	☐
d. Content of course(s)	77-	☐	☐	☐	☐	☐
e. Instructional media	78-	☐	☐	☐	☐	☐
f. Class size	79-	☐	☐	☐	☐	☐

8 If you have used any of the below college services, please rate them according to how well they fulfilled your individual needs.

		Very Good 1	Good 2	Average 3	Poor 4	Very Poor 5
a. Financial aids	34-	☐	☐	☐	☐	☐
b. Counseling	35-	☐	☐	☐	☐	☐
c. Job placement services	36-	☐	☐	☐	☐	☐
d. Course advisement	37-	☐	☐	☐	☐	☐
e. Tutoring services	38-	☐	☐	☐	☐	☐
f. Veterans services	39-	☐	☐	☐	☐	☐
g. Learning lab. packages	40-	☐	☐	☐	☐	☐
h. Student activities	41-	☐	☐	☐	☐	☐
i. Library services	42-	☐	☐	☐	☐	☐

9 Do you currently have a college degree or certificate?

73- ☐ Yes what? ➡
☐ No

74- 1 ☐ Certificate
2 ☐ Associate Degree
3 ☐ Bachelor's
4 ☐ Master's
5 ☐ Doctorate
6 ☐ Other ______________________

(Degree or Certificate Field of Study)

____

OMA

☐
☐
☐
☐
☐
☐

10 What is your current educational status? (Check one)

43- 1 ☐ Currently attending school
2 ☐ Not currently attending school

11 What is your current employment status? (Check one)

44- 1 ☐ Employed (includes all employment, even if below your qualifications; does not include full-time military service)
2 ☐ Employed (Full-time military service)
3 ☐ Unemployed (Not employed, but actively seeking employment)
4 ☐ Not in labor force (Not employed and not seeking employment because of choice, illness, full-time student status, retirement, pregnancy or other such reason)

OVER PLEASE!

BELOW SPACE RESERVED FOR COMMENTS

MAJOR CODE

SECTION B

IF YOU ARE CURRENTLY EMPLOYED, OR IN FULL-TIME MILITARY SERVICE, PLEASE ANSWER THIS SECTION. OTHERWISE, SKIP TO SECTION C.

Do not write in this column.

1 Please provide the following information on your present job.

Name of Company or Firm (If self-employed, please write self.)

Company or Firm Mailing Address

City State (57) Zip Code

Your Job Title

Your Job Duties

SIC 45 ☐ 46 ☐ 47 ☐

EJT 48 ☐ 49 ☐ 50 ☐ 51 ☐ 52 ☐ ☐ ☐ ☐ ☐

2 Is this job related to the courses you have completed at our college?

62-1 ☐ Yes, it is directly or closely related
2 ☐ No, it is only remotely related or is not related at all

3 What is your current salary (gross)? (Do not add in overtime.) This information, when combined with others in your field of study, will provide valuable information to other individuals in their own career planning.

(Check one)

$ ______ . ______ PER 1 ☐ HOUR 2 ☐ WEEK 3 ☐ MONTH 4 ☐ YEAR
(63) (70)

4 The salary in the preceding item is based on how many hours per week employment?

______ Hours per Week (71-72)

Dates of Employment From ______ To ______

63 ☐ 64 ☐ 65 ☐ 66 ☐ 67 ☐ 68 ☐ 69 ☐

5 We periodically conduct surveys of employers to help us evaluate the courses we offer and to advise us on other courses and programs which are needed. If we may contact your immediate supervisor so he or she can have the opportunity to participate in such a survey, please supply the below information.

Supervisor's Last Name First Name M.I.

Supervisor's Job Title

Please provide address if different from your company address

HR 71 ☐ 72 ☐

EJT 34 ☐ 35 ☐ 36 ☐ 37 ☐ 38 ☐ ☐ ☐ ☐ ☐

6 Please check below if the course(s) you took at our college helped you in your occupational area in any of the following ways.

43-1 ☐ Helped to obtain job
44-1 ☐ Helped performance on present job
45-1 ☐ Helped advance on present job
46-1 ☐ None of the above
47-1 ☐ Other (describe) ______

7 How would you rate the training you received at our college in relation to its usefulness to you in performing your job?

48- 1 ☐ Very Good
2 ☐ Good
3 ☐ Average
4 ☐ Poor
5 ☐ Very poor

8 Would you recommend the course(s) taken at our college to others employed in positions similar to yours?

49- 1 ☐ No
2 ☐ Undecided
3 ☐ Yes

9 Were you employed in your occupational area PRIOR to enrolling in the course(s) completed at our college?

50- 1 ☐ No
2 ☐ Yes

SECTION C

IF YOU HAVE ENROLLED IN ANOTHER COLLEGE SINCE YOUR ENROLLMENT AT OUR COLLEGE, PLEASE ANSWER THIS SECTION. OTHERWISE, SKIP TO SECTION D.

Do not write in this column.

1 Please provide the below information on your current (or most recently attended) college.

Name of College

City and State

Your Current Major Field of Study

TC 51 ☐ 52 ☐ 53 ☐ 54 ☐ 55 ☐ 56 ☐

2 Did you have problems transferring to the college indicated above?

65- 1 ☐ Yes, what? →
66-1 ☐ Transferring credit hours
67-1 ☐ Transcript problems
68-1 ☐ Admission problems
69-1 ☐ Other (describe) ______
2 ☐ No

TMC 57 ☐ 58 ☐ 59 ☐ 60 ☐ ☐ ☐ ☐ ☐

3 How many credit hours earned at our college were not accepted at the college indicated above?

70- 1 ☐ All credit hours accepted
2 ☐ Lost 1 - 3 credit hours
3 ☐ Lost 4 - 6 credit hours
4 ☐ Lost 7 - 12 credit hours
5 ☐ Lost 13 - 21 credit hours
6 ☐ Lost more than 21 credit hours

4 In your opinion, how well did our college prepare you for continuing your education?

71- 1 ☐ Very good
2 ☐ Good
3 ☐ Average
4 ☐ Poor
5 ☐ Very Poor

5 If you are currently enrolled in college, please indicate your current status and classification at the college indicated above.

STATUS

72- 1 ☐ Part-time student (Less than 12 hours)
2 ☐ Full-time student (12 or more hours)

CLASSIFICATION

73- 1 ☐ Freshman
2 ☐ Sophomore
3 ☐ Junior
4 ☐ Senior
5 ☐ Graduate student

6 How many credit hours earned at our college were successfully transferred to another institution?

______ Credit hours transferred
(74-76)

7 What term and year did you first enroll at your transfer institution?

______ Term ______ Year

TYP 77 ☐ 78 ☐ 79 ☐

SECTION D

ALL STUDENTS SHOULD ANSWER THIS SECTION.

1 Approximately how many credit hours have you completed at our college? Please mark appropriate column.

74- 1 ☐ None
2 ☐ 1 - 10
3 ☐ 11 - 20
4 ☐ 21 - 30
5 ☐ 31 - 40
6 ☐ 41 - 50
7 ☐ 51 - 60
8 ☐ More than 60

2 How do you see the course(s) completed at our college in terms of your career plans:

76-1 ☐ of immediate, direct benefit
77-1 ☐ of long term, direct benefit
78-1 ☐ of indirect benefit
79-1 ☐ of no benefit

3 Are you interested in taking other courses at our college? You may include courses not presently offered by our college.

80- 1 ☐ No
2 ☐ Yes: what course(s)? ______

4 We would appreciate any comments regarding how we could improve the course(s) you have completed and/or services we have provided. Please use the below space (front and back) for your comments.

NRS-DeVAULT

BELOW SPACE RESERVED FOR COMMENTS

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(Use reverse side for additional space)

THANK YOU FOR ASSISTING US IN OUR SURVEY! PLEASE RETURN THIS FORM IN THE PRE-PAID ENVELOPE AS SOON AS POSSIBLE!

TX8-4-E (EMP-DeVault) Term:

Tex-SIS FOLLOW-UP

☐ 1

PROJECT FOLLOW-UP

Please make corrections to the information above if necessary.

Note: This survey is authorized by Public Laws 20 USC 2312 and 20 USC 2391. While you are not required to respond to this survey, your cooperation is needed to insure that the results of this effort are comprehensive, reliable, and timely.

☐ 44

FOR COLLEGE USE ONLY

SEX
65- M ☐ Male
F ☐ Female

ETHNIC GROUP
66
5 ☐ American Indian or Alaskan Native
4 ☐ Asian or Pacific Islander
2 ☐ Black, not of Hispanic Origin
3 ☐ Hispanic
1 ☐ White, not of Hispanic Origin

AGE
67-
B ☐ 16-19
C ☐ 20-24
D ☐ 25-29
E ☐ 30-34
F ☐ 35-44
G ☐ 45-54
H ☐ 55-64
I ☐ 65 and over

Term Date
Mo ☐ ☐ Yr ☐ ☐
16 17 20 21

Completion Code 73 ☐

Course Type Code
74- 1 ☐ Coop
2 ☐ Non-Coop

Group Code
33- A ☐ O/T
B ☐ UT
C ☐ OTH
D ☐ VC

Target Pop. Code
1 ☐ REG
2 ☐ DAVT
3 ☐ HNCP
4 ☐ LEP
5 ☐ SP/HOME
6 ☐ SB/STER

Major Code
34 35 36 37 38 39

Level Code
76- 2 ☐ Postsecondary
3 ☐ Adult - LT
4 ☐ Adult - ST
5 ☐ OTH

EMP Code ☐ 62

Special Code ☐ 63

IDENTIFICATION ____________________

☐ ☐ ☐ ☐ ☐ EJT
46 47 48 49 50

JOB TITLE ____________________

☐ ☐ ☐ ☐

PROGRAM MAJOR ____________________

☐ ☐ ☐ SIC
55 56 57

____
EMPLOYER (COMPANY NAME - INSTITUTION - ORGANIZATION, ETC.)

1 Is the job title and status of this individual accurate?
58- 1 ☐ Yes
2 ☐ No: IF NO, please describe change(s) below.
____
____

2 What is your relationship with this individual?
59-1 ☐ Employer
60-1 ☐ Supervisor
61-1 ☐ Personnel staff
62-1 ☐ Co-worker
63-1 ☐ Other (describe) ____________________
____

OVER PLEASE!

3

Please rate the training received by this individual in the following personal skill areas. Please respond only to those areas you feel are appropriate.

Do not write in this column.

		Very Good 1	Good 2	Average 3	Poor 4	Very Poor 5
a. Accepting responsibility	64-	☐	☐	☐	☐	☐
b. Punctuality	65-	☐	☐	☐	☐	☐
c. Personal initiative	66-	☐	☐	☐	☐	☐
d. Willingness to learn	67-	☐	☐	☐	☐	☐
e. Co-worker cooperation	68-	☐	☐	☐	☐	☐
f. Management cooperation	69-	☐	☐	☐	☐	☐
g. Work attendance	70-	☐	☐	☐	☐	☐
h. Work attitude	71-	☐	☐	☐	☐	☐
i. Personal appearance	72-	☐	☐	☐	☐	☐
j. Compliance with policies	73-	☐	☐	☐	☐	☐

4

Please rate the training received by this individual in the following technical skill areas. Please respond only to those areas you feel are applicable to the occupational area.

		Very Good 1	Good 2	Average 3	Poor 4	Very Poor 5
a. Mathematical skills	34-	☐	☐	☐	☐	☐
b. Technical knowledge	35-	☐	☐	☐	☐	☐
c. Organizational ability	36-	☐	☐	☐	☐	☐
d. Communication skills	37-	☐	☐	☐	☐	☐
e. Problem solving skills	38-	☐	☐	☐	☐	☐
f. Work quality	39-	☐	☐	☐	☐	☐
g. Work quantity	40-	☐	☐	☐	☐	☐
h. Manual dexterity	41-	☐	☐	☐	☐	☐
i. Meeting the public	42-	☐	☐	☐	☐	☐
j. Following instructions	43-	☐	☐	☐	☐	☐
k. Operation of equipment	44-	☐	☐	☐	☐	☐

5

What is your overall rating of the training received by this individual as it relates to the requirements of his or her job?

45—
1 ☐ Very good
2 ☐ Good
3 ☐ Average
4 ☐ Poor
5 ☐ Very poor

6

What, in your opinion, is the job outlook for program employees of this particular occupational field?

Do not write in this column.

Present		Future
46— 1 ☐	Very good	47— 1 ☐
2 ☐	Good	2 ☐
3 ☐	Average	3 ☐
4 ☐	Poor	4 ☐
5 ☐	Very poor	5 ☐

7

As a result of this person's training, how would you rate his or her preparation in relation to other employees in his or her working group who did not receive such training?

48—
1 ☐ No basis for comparison
2 ☐ Individual is better prepared
3 ☐ Both are about the same
4 ☐ Individual is less prepared

8

To what extent, if any, has this individual's training added to his or her ability for job placement and advancement?

49—
1 ☐ Very much
2 ☐ Much
3 ☐ Average
4 ☐ Very little
5 ☐ None

9

What was the primary source(s) for the initial hiring of this individual?

50-1 ☐ Employment agency
51-1 ☐ College faculty member
52-1 ☐ College job placement office
53-1 ☐ Mutual acquaintance
54-1 ☐ Applicant applied on own initiative
55-1 ☐ Other (describe) ____________________

____

____

A

What suggestions do you have for improving the technical and/or personal skills of future employees?

B

What, in your opinion, are additional areas of training (job titles, skills, etc.) in which our school should become involved?

EMP-DeVAULT

THANK YOU FOR ASSISTING US IN OUR SURVEY! PLEASE RETURN THIS FORM IN THE PRE-PAID ENVELOPE AS SOON AS POSSIBLE!

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XIII. CAREER LADDER INFORMATION

The following is a career ladder for a student who is interested in pursuing a career in the area of forest technology. The 2+2 program provides for exit points at different levels with the job benefits and types of skills performed appropriate with the level of education attained. These jobs are only entry level jobs with promotions and benefit increases possible.

EXIT LEVEL	JOB TITLE
Higher Education (Grade 16) Baccalaureate Degree	Forester Lumber Mill Supervisor Lumber Sales Manager
Postsecondary (Grade 14) Associate of Applied Science Degree	Forest Technician Lumber Mill Assistant Foreman
Secondary (Grade 12)	Log Truck Driver Heavy Equipment Operator

XIV. RECOMMENDED TEACHER APPROVAL CRITERIA

Secondary teachers who plan to initiate a 2+2 Agricultural Program in the area of Forest Technology should have the following qualifications:

1. The teacher should have a valid Texas Teacher Certificate with Agricultural Science and Technology certification.
2. The teacher should have attended forestry related workshops as approved by the Texas Education Agency.
3. It is not essential but is recommended that the teacher have taught within the last three years at the time of implementation of the 2+2 program or be a recent graduate (within the past 12 months) of an approved agricultural education program from a Texas college or university.

XV. ARTICULATION AGREEMENT

The following is an example articulation agreement to be signed by the secondary and postsecondary institutions who are interested in providing the agriculture 2+2 curriculum for their students.

AGRICULTURAL OCCUPATIONS 2+2+2 PROGRAM

ARTICULATION AGREEMENT

PURPOSE

1. To eliminate duplication of effort between area secondary and postsecondary educational institutions in the delivery of agriscience courses.

2. To optimize student enrichment by providing coordinated curriculum to insure a continuous learning path, beginning at the secondary level and continuing to the postsecondary level.

3. To assure that students are adequately equipped with the necessary academic and vocational skills to gain and hold employment upon graduation from both secondary and postsecondary levels.

AGREEMENT

1. Secondary institutions which are a party to this agreement hereby agree to:

    a. Evaluate and recruit students who have, in their opinion, necessary qualifications to successfully complete the Agricultural Occupations 2+2 or 2+2+2 Articulated Program.

    b. Offer and maintain for the duration of this agreement the agriscience courses designated as a part of the Agriculture 2+2+2 Articulated Program or a series of courses containing the same competencies.

    c. Maintain necessary records to track and evaluate individual student's progress of required agriscience competencies as contained in the Agricultural Occupations 2+2+2 Articulated Program. Such records will be forwarded to the postsecondary institution upon request.

2. The postsecondary institutions which are a part of this agreement hereby agree to:

    a. Assist secondary institutions which are a party to this agreement in evaluating and recruiting students.

    b. Offer and maintain for the duration of this agreement Applied and Associate Degree curriculum and resources as specified in the Agricultural Occupations 2+2 and 2+2+2 Articulated Program. No student will be allowed to enter the associate degree program without having first successfully completed the competencies required in the secondary portion of the Agricultural Occupations 2+2+2 Articulated Program.

AGRICULTURAL OCCUPATIONS 2+2+2 PROGRAM

ARTICULATION AGREEMENT
Continued

c. Provide an adequately trained faculty to administer and teach the Agricultural Occupations Applied and Associate Degree curriculum.

d. Provide assessment of students upon entry to the postsecondary institution(students must score 80% or greater on materials covered in secondary program) and counsel students regarding the Applied vs the Associate Degree Programs.

e. Continue student records provided by secondary institutions; maintain adequate records during applied or associate degree program; and track student progress through at least one year of employment and provide to employers upon request.

REVIEW AND CHANGE PROCESS

At the end of one year from the date of this agreement, a review of the Articulation Agreement of the Agricultural Occupations 2+2+2 Articulated Program will be conducted. All superintendents, principals, counselors, vocational administrators, instructors from secondary schools, administrators and instructors from postsecondary schools, and industry representatives will be invited to provide input for review and revision.

PROVISION FOR IMPLEMENTATION/TERMINATION

This agreement will become effective upon approval by the President of ______________________________ College and the Superintendent of ______________________________ Independent School District. Upon implementation, this agreement will continue on an annual basis until one of the parties petitions the other party to end the agreement.

Such petition to end the agreement (1) must be submitted one year in advance of the intent to terminate; (2) must be submitted in writing signed by the college president or school superintendent making the petition; and (3) must be delivered to the second party of the agreement. Delivery of the intent to terminate will constitute formal notification and will serve as grounds for termination one year following the date of delivery.

______________________________ President	______________________________ Superintendent
______________________ College	______________________ ISD
______________________ 1991	______________________ 1991